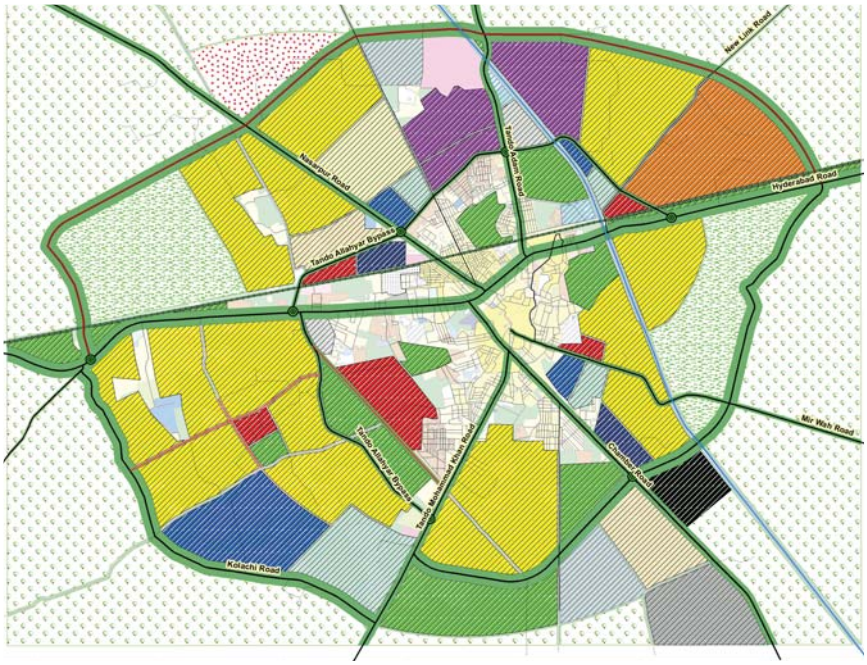
Directorate of Urban Policy Strategic Planning,
P & D Department, Government of Sindh

URBAN POLICY & STRATEGIC PLANNING
P & D DEPARTMENT GOVT OF SINDH

# PREPARATION OF DEVELOPMENT MASTER PLANS OF FOURTEEN (14) DISTRICT HEADQUARTER TOWNS OF HYDERABAD, MIRPURKHAS AND SHAHEED BENAZIRABAD DIVISIONS"

# STRATEGIC DEVELOPMENT PLAN REPORT

## (2017- 37)








# TANDO ALLAHYAR

February, 2021

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# TRANSMITTAL LETTER

Urbanization in Pakistan is taking place at a substantially high pace most of which is gravitating to the large cities. The secondary cities have not been able to play their role as the "Engine of Economic Growth" due to lack of public funding in the development infrastructure resulting in lop-sided spatial spread. The hinterland has remained poor facing abject poverty due to less economic opportunities, social facilities and institutional support.

Sindh Government took initiative by establishing Directorate of Urban Policy and Strategic Planning (UPSP) within the Planning and Development Department in 2012, to initiate and ensure planned growth of secondary cities of Sindh province through the preparation of Master Development Plans of District Headquarters Towns. In this phase 14 DHQ Towns of Hyderabad, Mirpurkhas and Shaheed Benazirabad Divisions Viz Nawabshah, Sanghar, Naushahro Feroze, Mirpurkhas, Mithi, Umerkot, Tando Muhammad Khan, Tando Allahyar, Mitiari, Badin, Thatta, Sujawal, Dadu, Jamshoro and one SDG compline taluka Islamkot Town.

Directorate of Urban Policy and Strategic Planning initiated Consultant selection process under SPPRA rules. The consortium of three reputable local Consultants led by EA Consulting (Pvt.) Ltd. including MMP (Pvt.) Ltd. and EMC (Pvt.) Ltd was selected due to their high standing in prequalification and lowest financial bid. The Consultants brought together a highly qualified and experienced team to provide the specialized inputs. The data collection was carried out in the field through a sample socio – economic surveys, questionnaires to various government offices and discussions with the stakeholders. The findings and recommendations were submitted to client for review in seven stages and shared with the stakeholders in workshop for each town. This report is the final Deliverable (Strategic Development Plan Report) of the project.

The volume and spatial spread of the project area did present lot of logistics and data availability problems which were resolved with the support of Client who had pursued actively with the various lines departments to assure all available data to Consultants. The Consultant's team is indebted to the Director General UPSP and his team without their support it would not have been possible to complete this project. The consultant would also like to thank all the district officials for making field exercise productive.

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Moreover, the consultant also appreciates the support of all the District &, line Departments officers/ officials for extending their valuable input and coordination during the preparation of this assignment.

# PREPARATION OF DEVELOPMENT MASTER PLANS OF FOURTEEN (14) DISTRICT HEADQUARTER TOWNS OF HYDERABAD, MIRPURKHAS & SHAHEED BENAZIRABAD DIVISIONS

## Strategic Development Plan Report – Tando Allahyar

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Annexure – A: Sustainable Development Goals Acceleration Plans

Annexure – B: Atlas

# LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ADP | Annual Development Plan |
| AGR | Annual Growth Rate |
| BC | Brick Construction |
| BHU | Basic Health Unit |
| BOD | Biological Oxygen Demand |
| CBD | Central Business District |
| CC | Climate Change |
| DBM | Digital Base Map |
| DCs | Deputy Commissioners |
| DHQ(s) | District Headquarters |
| DMP | Disaster Management Plan |
| DRM | Disaster Risk Management |
| DRR | Disaster Risk Reduction |
| DSPC | Development Strategies & Prevalent Condition |
| DUP&SP | Directorate Of Urban Policy & Strategic Planning, Government of Sindh |
| ECP | Emergency Contingency Plan |
| EDP | Economic Development Plan |
| EMC | Environmental Management Consultants |
| EPA | Environmental Protection Act |
| FWO | Frontier Works Organization |
| GBHS | Government Boys High School |
| GBHSS | Government Boys High Secondary School |
| GBLSS | Government Boys Lower Secondary School |
| GBPS | Government Boys Primary School |
| GER | Gross Enrolment Ratio |
| GGHS | Government Girls High School |
| GGHSS | Government Girls Secondary School |
| GGLSS | Government Girls Lower Secondary School |
| GGPS | Government Girls Primary School |
| GIS | Geographic Information System |
| GOP | Government of Pakistan |
| GOS | Government of Sindh |
| GPS | Global Positioning System |
| HESCO | Hyderabad Electricity Supply Corporation |
| HH | Household |
| HQ | Head Quarters |
| KA(s) | Katchi Abadis |
| KV | Kilo Volt |
| LPG | Liquid Petroleum Gas |
| LULC | Land Use/Land Cover |
| MC | Municipal Committee |

| | |
|---|---|
| MISC | Multiple Indicator Cluster Survey |
| MW | Mega Watt |
| NER | Net Enrolment Ratio |
| NGO | Non-Governmental Organization |
| NPDMP | National & Provisional Disaster Management Policy |
| NRM | National Reference Manual |
| O&M | Operation & Maintenance |
| OH | Over Head |
| P&D | Planning & Development Department |
| PCU(s) | Passenger Car Units |
| PDAO | Planning & Development Act Ordinance |
| PDMA | Provincial Disaster Management Authority |
| PGS | Population Growth Scenarios |
| PH | Peak Hour |
| PHED | Public Health Engineering Department |
| PMTs | Pole Mounted Transformers |
| PR | Public Representative |
| PTCL | Pakistan Telecommunication Limited |
| RAP | Resilience & Adaptability Plan |
| RCC | Reinforced Cement Concrete |
| SAR | Situation Analysis Report |
| SB&TPR | Sindh Building & Town Planning Regulation |
| SBI | Sindh Board Of Investment |
| SDI | Spatial Data Information |
| SECP | Securities & Exchange Connection Of Pakistan |
| SED | Socio Economic Data |
| SES | Socio Economic Survey |
| SEPA | Sindh Environmental Protection Agency |
| SME(s) | Small Medium Enterprises |
| SOP | Standard Operation Procedures |
| SPPRA | Sindh Public Procurement Regulatory Authority |
| SS | Sample Survey |
| SSGC | Sui Southern Gas Company |
| STP | Sewerage Treatment Plant |
| SWM | Solid Waste Management |
| SWOT | Strength Weaknesses Opportunities Threat |
| TAY | Tando Allahyar |
| TOR | Terms Of References |
| TSS | Total Suspended Solids |
| TVC | Traffic Volume Count |
| TW | Tube Well |
| UC | Union Council |
| UG | Under Ground |
| UG/l | Concentration of Arsenic (10 micro-gm/litre) |

| | |
|---|---|
| W&SD | Work & Services Department |
| WAPDA | Water and Power Development Authority |
| WATSAN | Water & Sanitation |
| WASH | Water, Sanitation & Hygiene |
| WB | World Bank |
| WHO | World Health Organization |

# STRATEGIC DEVELOPMENT PLAN REPORT-TANDO ALLAHYAR

# EXECUTIVE SUMMARY

## A. PROJECT AREA BRIEF

Tando Allahyar was previously a taluka of District Hyderabad, then in 2005 it was awarded the status of a district. The land of Tando Allahyar is flat and extensively fertile as it constitutes the rich alluvial deposit of River Indus. The district is bounded by District Mirpurkhas on the east, District Sanghar on the north, District Hyderabad and Matiari on the west and District Tando Muhammad Khan and Badin on the south. The district consists of three talukas, named Tando Allahyar, Jhando Mari and Chamber; 19 Union Councils and 201 villages.

District Tando Allahyar has its district headquarters in Tando Allahyar City. According to latest census of 2017, population of Tando Allahyar Town is 156,562 with a growth rate of 3.22%. Projected population works out to be 295,096 souls by 2037. The city extended in three directions constantly i.e. northern part along railway track, southern part and western part. The consultant's town's urban boundary comprised of almost 4,200 acres in which approx. 30% area is in residential use. The zonal plan of Tando Allahyar is divided into five zones.

## B. VISION 2037

As per the objective of the Provincial Government the planning process was carried out in Consultation with the stakeholders.
A vision formulating workshop was carried out with the main stakeholders on November 08, 2018. The stakeholders were mainly local citizens, government officials, businessmen and member of civil society. They were so logged down with the immediate day to day problems that they could not articulate a long term vision. However the collections of opinions expressed produced the following vision:

***"The city full filling all the basic needs, such as housing, water supply and sanitation, in clean and sustainable pollution free environment, with education and health for all, along with growth in local and regional economy with increase in employment, incomes and related skills development to emerge as well planned modern city with peace, security and prosperity like some of the most livable cities in the world."***

## C. DEMOGRAPHY

District Tando Allahyar is newly created. In 1998 the total population of the town was 85,812. The population of Tando Allahyar town has an estimated growth rate of 6.24% per annum, which means that the population will double itself in 29 years from 1998. 45% of the population is below 15 years of age and 2.83% is 65 years or above. According to the latest census of 2017 Population of Tando Allahyar town is 156,562. The table below depicts the past population growth trend of Tando Allahyar.

## D. SECTOR WISE ANALYSIS AND PROPOSAL

The Consultants had carried out data collections in three layers:

- Primary source including sample Socio-economic Survey.
- Secondary Source including data from government sources published and unpublished documents
- Discussions with the officials, Consultations with Stakeholders.

The present need analysis and constraints were compiled and submitted in the form of Situation Analysis Report. Consultative Workshops were held in respective DHQ Towns with an objective to validate the accuracy of data and verify the data analysis with the Stakeholders.

Keeping in view the stakeholder's comments and suggestions, the draft strategies were developed to fulfill needs in the most efficient way. The Draft Strategic Development Report submitted by the Consultants was again shared with the Stakeholders and their feedback/comments. Being solicited.

Thereafter, the Final Strategic Report will be submitted. Based on the approved strategies the final action will be the preparation of Long Term/Short Term Plans, Priority Plan and Immediate Action Plan for Core Urban Area.

Based on the evaluation of primary and secondary data, the need assessment has been carried out for a projected population on the basis of 20 years growth projections. The need assessment is based on the Baseline Indicators, Stakeholders Views, Demand vs Need Analysis, NRM with professional judgment and Consultant's own experience and standards used in other developing countries.

### 1. HOUSING

Housing in terms of affordable home with basic infrastructure and facilities is the basic human need. According to 2017 census population results, Tando Allahyar MC had household size of 7 persons and a total housing stock of 12,259. The major issues are that the household below poverty line remain neglected, poor land administration, housing in dilapidated condition, and unchecked growth of squatter settlements called Katchi Abadis, tough and costly documentation procedures and boosted land prices.

By 2037 the number of households have been estimated around 56,749 on fixed household size of 5.2 persons out of which additional housing requirement will be 26,641. The strategies need to focus on incremental housing schemes, land bank formation, regularization of notified Katchi Abadis, increased

number of small size plots, discouraging speculation in land prices, improvement of old housing, relocation of Katchi Abadis and improvement of basic utilities and community facilities. The long term plan includes the affordable housing programme, formulation of green building by-laws and establishment of mechanism of new approved housing scheme in which MC is bound to provide basic utilities and facilities. The priority projects should focus on the construction of housing schemes for low income people.

## 2. SOCIAL AMENITIES

### 2.1 Education

In district Tando Alahyar, at the primary level there are 680 schools, at middle school level there are 40 schools at the elementary level there are 3 schools, and at the secondary level there are 5 schools. Total enrollment for all schools combined is 79,662 students and 17,795 teachers. The issues include shortage of teachers and classrooms, low enrolment level, lack of provision of basic facilities and poor condition of educational institutional buildings.

The future need of additional classrooms in the primary-higher secondary schools till 2037 is 7,752. The education authorities should plan by gradually increasing the classrooms in existing schools in high density areas and new schools in low density areas. The spatial distribution of schools and other educational institutions should be such that our schools, especially girls' schools, are within easy walking distance. The short term plan need to focus on increasing equitable access to quality education, strengthening governance and enhancing equity of resource allocation. The strategies for long term plan include sustainable construction of new schools and colleges, catering to the demand of private schooling education system and bringing universal education ratio. The priority projects includes the addition of classrooms with facilities and basic utilities, improvement in the quality of education, training programmes for teachers, provision of vocational and skill training centers and upgradation of Government Degree College, Tando Allahyar. The immediate action plan involves the rehabilitation and upgradation of educational facilities. The projects for economic development plan are the rehabilitation of existing schools and colleges, establishment of new units and participation of private sector.

### 2.2 Health

There is one Civil Hospital having 100 beds, one THQ hospital having 32 beds and six Private Hospitals having 180 beds. The other health facilities include 3 RHCs having 24 beds, two TB Clinics, 14 BHUs having bed strength 28, five M.C.H.S and 69 Dispensaries calculating total number of 364 beds serving the district. The major issues are the lack of health facilities, diagnostic and health equipment, difficulty in transferring patients from rural to urban areas, vacant posts of doctors and medical staff, lack of training and housing facilities for LHW and paramedical staff and difficult access to healthcare facilities. The NRM (National Reference Manual) recommends 2 beds per thousand as the medium term target. On this basis 1,310 beds will be required to be provided. According to WHO standards doctor to population ratio is 1:1000, so taking that as a reference point currently the short fall of doctors comes out to be 673.

On the basis of NRM recommendation approx. 2,554 beds will be required to be provided gradually until 2037. According to WHO standards the future requirement of doctors comes out to be 1,295. The strategies for short term plan focuses on the improved access to healthcare facilities through ambulance network, availability of skilled workforce, expansion of immunization coverage, improving functionality of equipment, availability of quality medicines, rehabilitation and expansion of Civil Hospital and health awareness programmes. The long term plan includes the enhancement of Mobile Health Unit, availability of ambulance network, accommodation facilities for doctors and paramedic staff, installation of incinerators and provision of incentives for doctors and nurses. The priority projects need to focus on the extension of major Govt. Hospital, provision of Mobile Health Unit, provision of quick response ambulance service with all health units, upgradation of BHUs, RHCs and MCHCs, research programme for doctors and provision of diagnostic facilities, ambulance and pharmacy. The immediate action plan involves the rehabilitation and upgradation of health facilities especially Civil Hospital. The projects for economic development plan are the rehabilitation of existing hospitals, establishment of new units and participation of private sector.

### 2.3 Recreational

According to the Cultural Department of Tando Allahyar there are two parks namely; Shah Abdul Latif Bhitai Park and Ghani Park. Watayo Faqir Library is the only library in Tando Allahyar. Cultural and religious spaces includes Rama Pir Mandir and Darga Watayo Faqir. The major issues of this sector are the shortage of parks, playgrounds and recreational facilities, dilapidated condition of available recreational facilities and lack of interest of local government to develop the infrastructure.

The strategies for short term plan includes the restoration and maintenance of existing open spaces, preservation of cultural heritage, cater the water shortage problem, availability of sports infrastructure, provision of infrastructure to accommodate visitors and commercialize cultural goods. The long term plan needs to focus on the protection of historical places, proper organization of cultural events, youth development programme, promote tourism and air pollution reduction. The priority projects are rehabilitation and construction of family parks and playgrounds, provision of missing facilities in existing Gymkhana, construction of auditoriums and upgradation of art councils. The immediate action plan focuses on the construction and rehabilitation of parks, rehabilitation of Eid Gah and mosques, cultural heritage preservation and provision of open green spaces.

# 3. ECONOMIC DEVELOPMENT

## 3.1 Irrigation

District Tando Allahyar has a well-established system of irrigation having a single canal named as Naseer Canal which is a distributary canal of Rohri Canal. Agriculture of the district mainly depends upon Canal Irrigation. Other modes of land irrigation like river water and tube wells are also used.

## 3.2 Agriculture

Tando Allahyar contributes significantly in agriculture sector of Sindh because its climate is suitable for production of various crops. There are two main crop seasons; Kharif and Rabi in the district. Crops cultivated in Tando Allahyar are sugarcane, rice, wheat, mango, rapeseed, mustard, cotton, jowar, maize, gram and barley. The total geographical area of district is 173,000 hectares out of this cultivared area is up to 116,000 hectares. The major issues are high price of inputs, lack of agriculture credit facilities, sugar industry crisis, water logging and salinity, and shortage of irrigation water.

The strategies need to focus on to modernize and revitalize agriculture, increase supply and quality of agricultural crops, sufficient market infrastructure, agriculture technology development, maximize production and increase the economy through export of mangoes. The long term plan includes creating job opportunities for rural population, provision of strong transport system, provision of incentives for outside investors, enhancing crop productivity and provision of warehouses. The priority projects focuses on the regular supply of irrigation water, improvement in crop yield, installation of tube wells and rehabilitation of canals and drainage system. The projects for economic development plan are the agriculture credit facilities, regular supply of irrigation water, availability of fertilizer, pesticides and quality seeds, tube well installation, decrease water logging and salinity and construction of farm to market roads.

## 3.3 Livestock and Fisheries

There are 20 livestock farms registered in district Tando Allahyar. District has 213,000 Goats, 139,000 Buffaloes and 58,000 Cattle. Livestock is served by three veterinary hospitals and seven centres. The annual fish production of the district is 365 Tons. The issues of livestock includes landlessness, subsistence farming, secondary source of income, reduced area for natural grazing, climate change, lack of facilities and shortage of high quality feed. There is need to develop broad-based fisheries policy to modernize the fisheries sector.

The strategies need to focus on improving production performance of livestock through manipulation of different minerals and through deworming, establishment of model livestock, new cattle and dairy farms, provision of veterinary services, co-operative dairy farming and in-land fisheries, availability of large pasture land and labour force, livestock based products can enhance economic activities, lease of fishing rights, training through schools, local awareness, enforcement of fisheries enactment, fish seed stock replenishment, aquaculture development and acquire land for fish production. The projects for economic development plan are firstly the establishment of livestock and dairy farms and secondly, develop and implement broad-based fisheries policy required for development of fisheries sector.

### 3.4 Industries

Major industry in Tando Allahyar District is a sugar mill, whereas medium size industries consist of flour mills and cotton ginning factories. There are five cotton ginning factories. The district has established industries which are related to the agriculture.

The strategies need to focus on sufficient market infrastructure, development and establishment of Industrial Estates, provision of vocational training and employable skills, paradigm shift from industrial agriculture to agro-ecological systems, promoting international trade, increase job employment opportunities, installation of more industries and production of good quality products will enhance industrial profile of the district. The priority projects includes the revitalization and extension of Industrial Estates, increase storage capacities, provision of infrastructure for establishment of new industries, support industrial development and modernize the service sector.

### 3.5 Trade and Commerce

There is availability of financial institutes in the district. The district is well-known due to its characteristics of agriculture engine which serves all over Sindh. Large number of local skilled artisans available and it is a strong local retail.

The main problems include failure of PPP, demise of local agriculture market, un-planned local business activitis and non-usage of vegetable markets. So, the priority project includes revitalization of existing fruit an dvegetable markets which will enable smooth traffic movement and efficient trading. The immediate action plan focuses on the rehabilitation of main commercial area including main bazar area, chamber road and cinema road. The strategies for long term plan are provision of fruit and vegetable market, specialized wholesale markets, construction of building for service industry and provision of warehouses. An important step towards economic development will be encouragement for establishment of financial services in Tando Allahyar.

## 4. BASIC UTILITIES

### 4.1 Water Supply

The current water supply is 1.65 mgd as informed by PHED against the demand of 4.7 mgd. Most of the area is served by tube wells. Most of the town is having hand pumps and less than half of the town is covered by pipe supply. The issues related to this sector are weak institutional arrangements, high proportion of non-revenue water, dysfunctional water supply schemes, ageing infrastructure, poor water quality, no treatment of raw water, high dependency on depleting ground water, inadequate water supply coverage and no water treatment or chlorinators on tube wells.

The water requirement for 2037 is projected as 8.8 mgd. The strategies for short term plan includes the extension of existing irrigation system and introduction of PPP in service delivery. The long term plan focuses on to cater the need of systematic water supply system and treatment plant, design of water supply pipes should ensure no contamination of water and construction of RO plant. The priority projects

involves the improvement of water intake works, procurement for additional land for water works, construction of OH tank and water filtration plant, rehabilitation of existing water supply network and installation of new water supply network.

### 4.2 Sewerage and Drainage

Majority of the town is served by combined drain and sewer system. The canal passing inside the urban area is also used for sewage disposal. Sanitation conditions in District Tando Allahyar is poor in terms of using toilets. The major issues are open drains on street, improper channelization of drains, depression areas causing ponding, improper operation and maintenance of sewerage facilities, informal settlements, poor condition of drainage system and no sewage treatment plant thus raw sewage discharged into water bodies. Sewerage flows at 70% of the water supply, therefore presently against the water demand of 4.7 mgd the sewerage flows is 3.3 mgd.

By the year 2037, 6.2 mgd sewage will be generated against the estimated water supply of 8.84 mgd. The long term strategies include the provision of improved drainage and sewerage services, priority given to un-served areas, development of sanitation plan, implementation of appropriate sewerage system plan, improvement of general hygiene, PPP in service delivery and reclamation of land. The short term focuses on the usage of gravity flow systems, acquire land and provide stabilization ponds and removal of land where temporary ponds have been formed. The priority projects involves the construction and rehabilitation of drains, rehabilitation of waste water disposal station and waste water treatment plant, sewer system rehabilitation, canals to be saved from toxic disposals, planning for well-connected gravity based open drainage system, development of trunk sewerage network, acquire land and proper sewage treatment plants leading up to recycling of treated affluent for landscaping, etc.

### 4.3 Solid Waste Management

Every locality has got throw away sites in the form of depressions, empty areas, cutting areas, etc. there are nearly five established and active secondary collection points. The issues of this sector are that the public lacks awareness on importance of sanitation, vacant plots are used as throw away sites, no protective soil cover provided, poor maintenance condition, no treatment before disposal, no recycling and reduction of solid waste and mixing of solid waste into sewerage. Considering waste generation rate as 0.45 kg per capita per day, with the current population the total waste arising in the municipality is approx. 70,450 kg per day.

The strategies for short term plan include the collection and disposing of solid waste is the responsibility of MC, effective and efficient collection system and segregation practice for biomedical waste collection system. The long term focuses on the community and private sector involvement, public awareness, encourage on-site reuse and recycling and implement waste minimization. The priority projects need to focus on the feasibility study for construction of composting plant, procurement for land acquisition process for landfill site and introduction of 4Rs.

# 5. INFRASTRUCTURE

## 5.1 Energy

There is no power generation facility in the vicinity of Tando Allahyar (MC). H.T feeders from Hyderabad-I circle supplies electricity to Tando Allahyar. The major issues are shortage of electricity and power supply, poor maintenance of electricity supply infrastructure, power shortage due to non-payment of bills, line losses and power theft, outdated network and no alternate source of electricity.

The strategies for the development plan include that HESCO has to improve its capacity, SSGC have to expand the capacity and facilities, increasing capacity of grid station, opportunities for alternative energy production and renewal of outdated network. The long term plan focuses on the usage of low cost energy production systems, achieving fuel efficiency, adopting new technologies, altering existing fuel habits, addition of sub-stations and encouraging energy efficient building construction. The priority projects involves the promotion of energy efficient appliances and feasibility study for alternate energy sources.

## 5.2 Gas Supply

Out of the 765 houses surveyed by the consultants, 83% had the piped gas available to them. 17% of the houses having no gas availability use alternate sources of fuel for their daily household needs. The strategies need to focus on feasibility study for alternate resources available, measures to cater gas load shedding and appropriately price the energy resources.

## 5.3 Transportation

Tando Allahyar has direct access to Hyderabad domestic airport but due to some technical reasons this airport is closed for commercial traffic. The city is linked with the national network of Pakistan Railways. The issues include unplanned street network, absence of public transport, ribbon type commercial development, poor traffic management, lack of integrated transport provisions, lack of co-ordination between different transport operating agencies, less provision of street furniture, non-aesthetic streetscape, lack of parking space, poor maintenance of railway station, poor administration and management control.

The long term strategies are expansion of railway station, improved road design, preventing encroachments, declaring private vehicle free zones, reduction in traffic growth and congestion, improvement in service delivery, infrastructure development and upgradation, dualization of main arteries and effective regulation of transport services. The short term plan needs to focus on building a transportation system, rehabilitation and reconstruction of existing roads, involvement of private sector, improved market access and maintaining sustainable traffic flow. The priority projects focuses on the installation of traffic signals and new solar street lighting, rehabilitation of major urban roads and construction of Tando Allahyar bus terminal. The immediate action plan involves the dualization of main roads, rehabilitation and widening of roads, widening and pavement of streets and provision of parking space.

### 5.4 Communication

Majority of the households do not have landline and internet facility but as the area is developing so it is also increasing with the passage of time. The major issues regarding this sector are lack of shared information, majority areas lack PTCL coverage, and internet usage is limited to educated families, negative cultural and ethical exposure to young minds and no check and balance of non-authorized SIM's usage.

Media can play an important role in the economic development and prosperity. It can promote immediate disaster forecasting. Communication network are the basic requirement for an efficient and profitable agriculture sector.

## 6. ENVIRONMENT AND DISASTER RISK MANAGEMENT

### 6.1 Environment

Tando Allahyar lies in zone 2A of seismic zoning map of Pakistan corresponds to minor to moderate seismic hazards. The lands along the river are formed of silt and sandy loam. Groundwater in the area is generally shallow. The issues related to environment are waterlogging and salinity, water contamination, low quality of surface water, seismic risk and ageing of surface drainage canal system.

The strategies for short term plan include ensuring environmental sustainability, preserving ecological cycles, strengthening forestry education, increasing productivity of rangelands, providing recreational facilities and alleviate poverty through forest based income. The long term plan focuses on achieving sustainable development, multi-pronged approach to fisheries management, create environmental awareness, and conserve biodiversity and fostering PPP. The priority projects involve the rehabilitation of irrigated plantation, enhancing rangeland production, improvement and rehabilitation of forest parks and afforestation along highways.

### 6.2 Disaster Risk Management

The District Tando Allahyar falls under the category of medium risk districts as declared by PDMA Sindh but was severely hit by rains and floods in 2011. The 2012 rains caused one casualty in the district. Due to droughts, approx. 25-35% population of region migrated to work in friendly environments. The major issues includes the low level of risk awareness and knowledge, no "risk conscious" development, insufficient DRR capacity and negligible involvement of private sector.

The strategies should focus on developing co-ordination mechanism with PMD, developing mechanism for regulation of water discharge and monitoring mechanism, providing necessary medical facilities, close co-ordination with DDMA, and declaration of emergency by the D.H.O at all medical units. The priority/short-term projects include the vigilance of canals/drains, to ensure smooth flow of water, dewatering of stagnant water, that HESCO ensures uninterrupted supply of electricity, provision of adequate stock of medicines, medical supplies, and medical cover to IDPs, fumigation of the affected areas, ensuring that ambulances are in working condition, setting up relief camps and ensuring sanitation and cleanliness. The long term plan needs to focus on providing medical cover to IDPs, disaster

preparedness planning, involvement of local level actors and clarification of mutual roles and responsibility between authorities.

## 7. IMPLEMENTATION

Presently, different proposals or schemes belonging to their respective sectors are identified by the departments and also incorporated separately in the Annual Development Programme (ADP). This creates a lot of problem as there would not be any harmony in the development of the city, as one scheme may create difficulties and problems for the other. It is necessary that all the public service sectors work together as a package that would result in proper development of the town.

The Government of Sindh would take responsibility of implementing various development proposals by utilizing its maximum resources and by engaging various public offices of government of Sindh, established in town. The concerned agency must ensure that the overall process must go after following themes of implementation process. The overall implementation process to be carried out in coordination with Town Planning and Urban Development Standards (Frameworks) in which redevelopment will be phased to prioritization.

Government may seek technical assistance from all the line department i.e. DUP&SP, Town Planning Department, Municipal Corporation, secretariat of Commissioner and Deputy Commissioner. A committee would be formed as the “Project Management and Implementation Unit” (PMIU) to implement on the Strategic Development Plan. The “Project Management and Implementation Unit” will mainly consist of qualified town and urban planners supported by other technical staff; architects, project managers, engineers, finance officers and any other technical staff expert in their relevant fields.

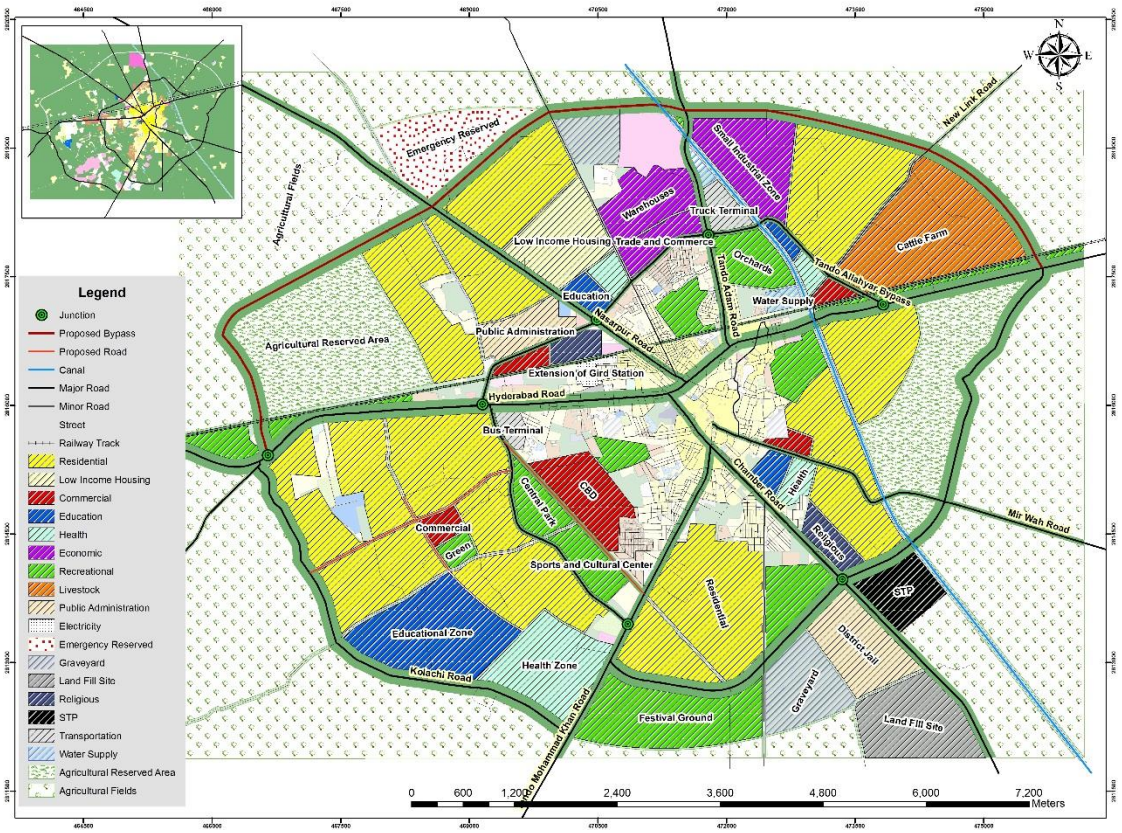
The “Project Management and Implementation Unit” shall supervise and coordinate respective urban developers involved in development activities, conduct monitory audits, prepare evaluation and impact reports. Planning and development department Government of Sindh shall lead “PMIU” to implement Master Plan.

## 8. STRATEGIES FOR FUTURE DEVELOPMENT

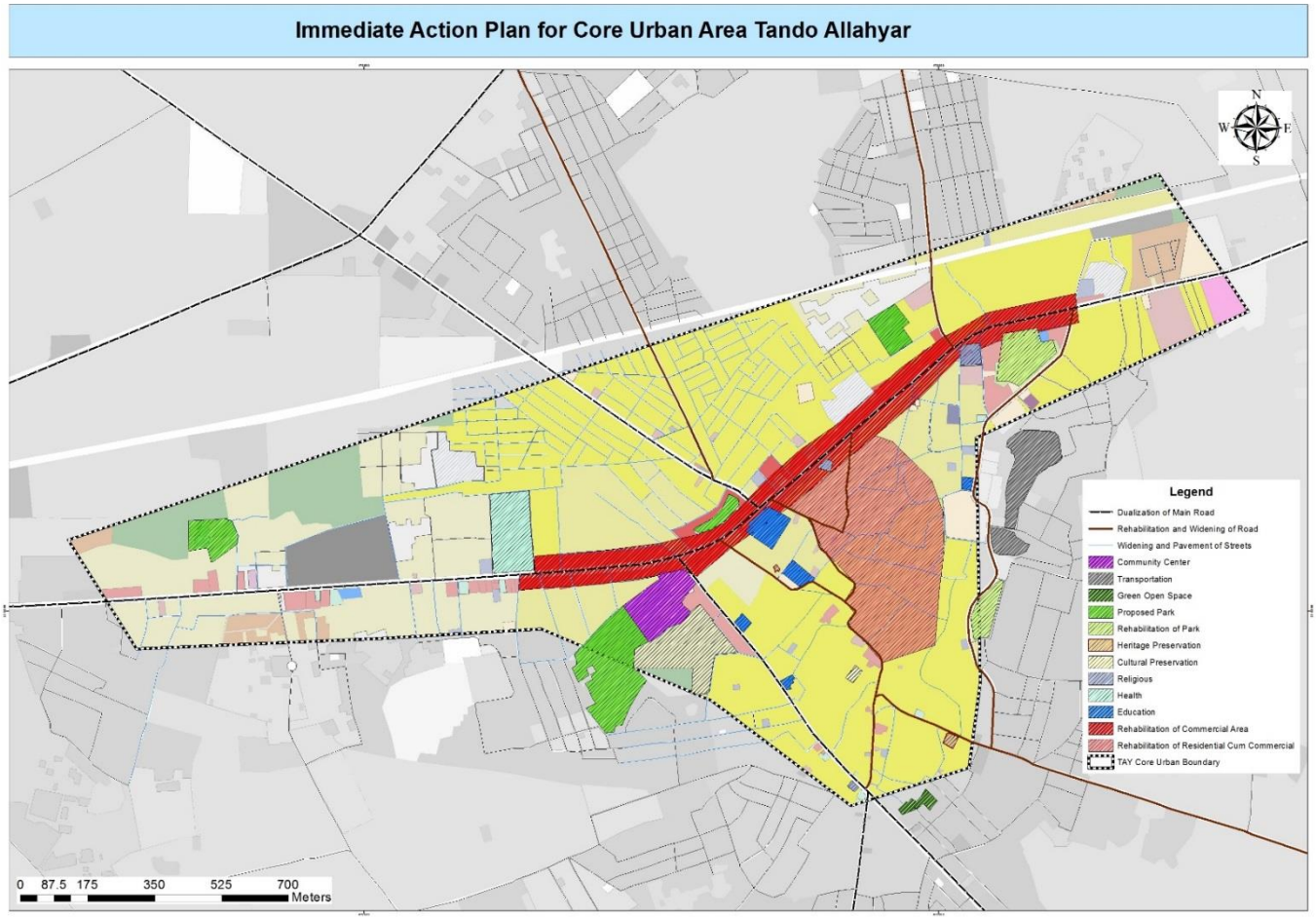
The strategies focus on revitalization of the affordable housing, provision of basic facilities, efficient transportation and communication, energy efficient technology, active service sector, implementation of pro-active governance, develop human resources, facilitate social infrastructure, reinforce the local governance institutions, modernize administration, preservation of heritage, sustainable environment, develop tourism resources, involve community participation and implementing Public-Private Partnership.

## 9. MASTER PLAN PROPOSALS

**Proposed Master Plan for Tando Allahyar Town**



## 10. IMMEDIATE ACTION PLAN




## 11. SDGS ACCELERATION PLAN:

Under the contract of the Preparation of Development Master Plan of 14 DHQ towns, SDG Acceleration Plan was not part of the approved TORs, however keeping in view the Sindh Government's initiatives to mainstream SDGs targets in provincial planning (taking Islamkot as a model SDG Taluka) the Directorate and Consultant after due consultative process felt the need to include brief SDG Acceleration Plan as part of Development Master Plans. Further in consultation with SDG Unit Sindh, SDG 11 – *Sustainable Cities and Communities* was selected for SDG Acceleration Plan for 14 DHQ towns, since it is pertinent to urban planning and development. Please refer Annexure (A) for brief SDGs Acceleration Plan.

# STRATEGIC DEVELOPMENT PLAN FOR

# TANDO ALLAHYAR TOWN

# 1. SINDH – AN OVERVIEW

Sindh is the most urbanized province in Pakistan. Due to lack of interest in the planning and development of secondary cities District Headquarters towns, the public funding in development infrastructure had been sporadic resulting in un-informed adhoc decisions. Consequently the secondary cities have not been able to play their role as "Engines of Economic growth" and hinterland has remained poor facing abject poverty due to less economic opportunities and social facilities. The poverty head count ratio in the urban-cum-rural areas is almost double than that in the declared urban areas.

Sindh government took initiative by establishing Directorate of Urban Policy and Strategic planning within the P & D Department initiate and ensure planned growth of Secondary cities through the Preparation of Master Development Plans of District Headquarter Towns in September 2008.

## 1.1 Project Background

Sindh, Pakistan's second most populated province plays a pivotal role in the national economic and development agenda. The country's largest port city, Karachi, is the financial capital of the country. The Province comprises of 23% of Pakistan's population and 18% of its land area. It has the highest concentration of urban population at 49% as compared to an overall country average of 32.5%, making it the most urbanized province in the country. With 23% of country's population, its contribution to the national GDP is around 33%. Sindh collects 70% of Pakistan's Income Tax and 62% of Sales Tax.

Sindh has 54% of country's textile units, 45% of its sugar mills, 20% of pulp & paper mills and 35% of edible oil processed locally. Sindh accounts for 34% of total industrial capacity in large scale manufacturing and 25% of small scale manufacturing. Moreover the Province produces 70 % of Country's gas, 30% petroleum and 95% of Coal.

Despite global economic slowdown towards the end of 2008 and Pakistan's solidarity with the International cause for peace, playing a key role as the front line state, Sindh's manufacturing sector has been resilient and investments have continued to pour in the economic cycle. MNCs and local enterprises are committed to make investments worth around USD 8.0 billion in the province in coming years.

Sindh's diversified economy also comprises of a well-developed agricultural base supported by an effective irrigation network on the River Indus. Around 14% wheat, 30% rice, 30% sugar cane, 25% cotton and 30% vegetable crops grown in Pakistan are from Sindh. This provides immense opportunity for setting up export based agri-processing industry in the province. (http://www.sbi.gos.pk/sindh-economy.php).

## 1.2 General Issues

Despite of its significant contribution in National GDP, Sindh has not received the priority in development funding as it deserves. DUP&SP is the medium through which grass root development / strategy is being formulated by professionals for the betterment of people and create de-centralize economical hubs to counter higher migration rate towards developed urban centers resulting better socioeconomic condition

of the people. While going through the available literature so far, several issues have been identified in this regards, such as:

- Non-existence of Sustainable planning policy, apparatus, regulatory framework and its implementation;
- Absence of current housing policy based on sustainable and smart growth mechanism;
- Lack of coordination between institutions responsible for development of a town or Absence of Institutional Framework.
- Previous Master / Development / Structure Plans of Town Planning Department have hardly been implemented due to poor implementation mechanism;
- Local cultural preferences and settlement patterns undermine the role of urbanization in supporting economic growth;
- In most of the District Headquarters Towns, in-effective municipal infrastructure and service delivery is a common cause of failures in water, waste water, SWM, etc.
- Non-existence of spatial and non-spatial database systems;

### 1.3 Objectives

The objective of the assignment, as mentioned in the TORs is to prepare Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas and Shaheed Benazirabad Divisions; for development of spatial planning and zoning system as well as local economic development strategies on the basis on ecological sustainability.

The Consultant is tasked to prepare strategies:

- To plan for social infrastructure at affordable standards for education, health, recreation and cultural needs.
- To upgrade the existing physical infrastructure and enhance the supply of potable water and to propose the required capacity of network for water supply, sewerage, drainage, flood waters till year 2037.
- To provide for modern sanitation, solid waste management and disposal.
- To improve existing road networks, extend links, upgrade intersections, bridges and flyovers; and other means of communication and proposed where needed.
- To provide for safe and efficient public transport.
- To plan for effective traffic management, smooth transit and provide for parking facilities, where required in multi-storey car parks.
- To plan for enhancement and revitalization of economic base by expansion of industrial and commercial base, and for rapid expansion of IT and Telecom sectors, tourism, agricultural activity, etc in the means of sustainable and smart concept.
- To propose alternate energy sources as country is facing acute shortage especially in summer season.

### 1.4 The Strategic Plan output

The proposed Development Master Plans of selected District Headquarter Towns of Sindh would focus on the following Tasks

- Review of Past Trends, Development Strategies and Prevalent Conditions
- Preparation of Digital Base Maps
- SWOT Analysis
- Carving out a Vision for the Future of these cities
- Preparation of Development Plan comprising of:
    - Long Term Development Plan
    - Growth Scenarios
    - Short Term Action Plans for Priority Infrastructures
    - Immediate Action Plan for the Core Urban Areas
    - Economic Development Plan
    - Disaster Management Plan and
    - Climate Change, Resilience & Adaptability Plans

# 2. AN OVERVIEW OF TANDO ALLAHYAR AND IT'S ENVIRONMENT

## 2.1 Tando Allahyar District

District Tando Allahyar comprised of three talukas i.e. Chamber, Jhando Mari and Tando Allahyar which has a population of 836,887 with annual growth rate (1998-2017) of 2.81%. District Tando Allahyar covered an area of 1,588 sq. kms with an average household size of 5.1 with 165,503 Housing units. Tando Allahyar is situated between Hyderabad and MirpurKhas in the South of Sindh and North of the Arabian Sea. It has its cultural values. Before April 2005, Tando Allahyar was Taluka Head Quarter of District Hyderabad. District Hyderabad was devolved into four Districts i.e. namely District Hyderabad, District Tando Allahyar, District Tando Muhammad Khan and District Matiari. The district consists of three talukas, named: Tando Allahyar, Jhando Mari and Chamber, 19 union councils and 201 villages. There are 87 Dehs (revenue village) in the district, out of which 85 are rural, one is urban and one is partly urban. Naseer canal runs through District Tando Allahyar it irrigates almost whole of the district with the help of several branch canals and water courses. Branch canals of the Khesana Canal also irrigate the western part of the district.

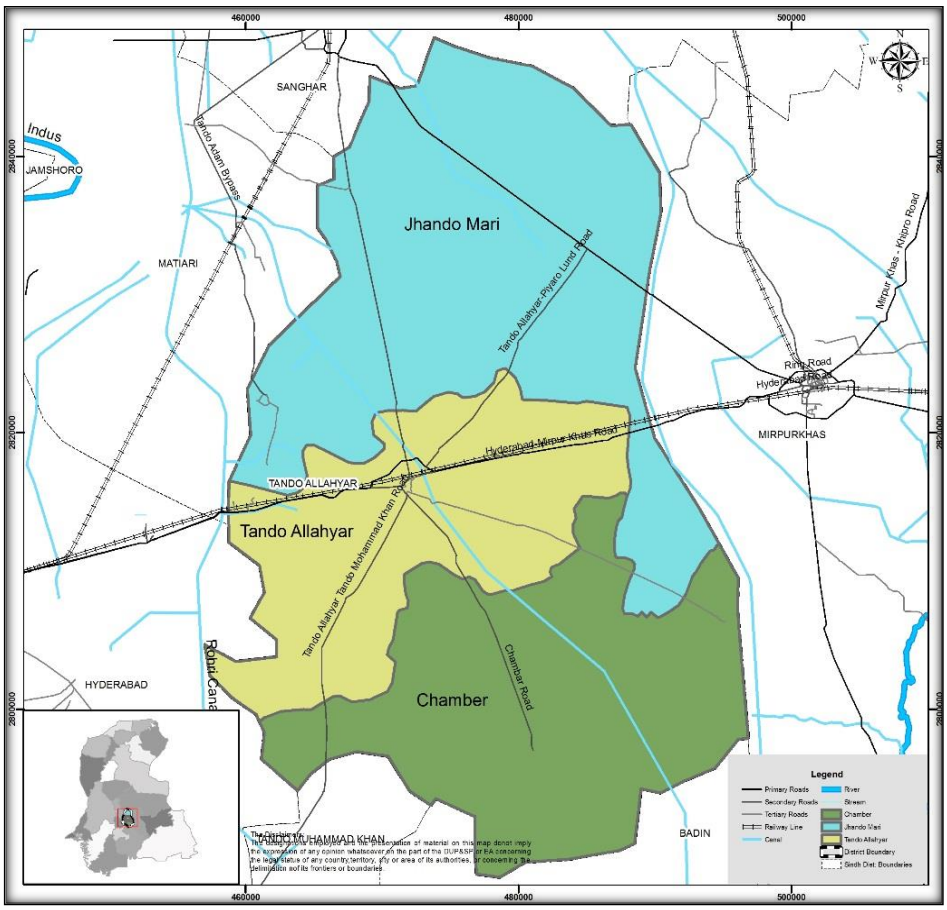



**Figure 2-1: Tehsil Map of Tando Allahyar**

## 2.2 Geographical Location

District Tando Allahyar lies between 68º 34' 23" to 68º 57' 35" east longitudes and 25º 12' 24'' to 25º 45' 17'' north latitudes. This district is bounded by district Mirpurkhas on the east, district Sanghar on the north, district Hyderabad and Matiari on the west and district Tando Muhammad Khan and Badin on the south.

**Boundaries:**

East: District Mirpurkhas & Sanghar.
West: District Hyderabad & T. Muhammad Khan
North: District Sanghar & Matiari
South: District Badin.

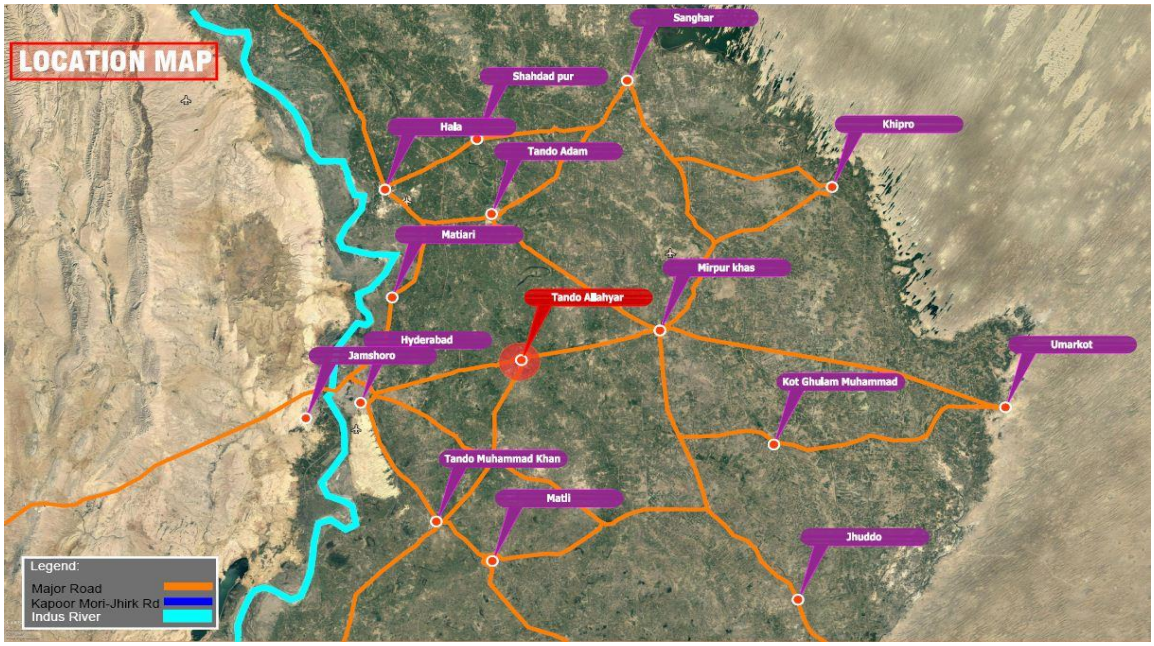



**Figure 2-2: Geographical Location of Tando Allahyar**

## 2.3 Climate

The hottest months of summer are June and July, while the coldest months of winter are December and January. Hot winds blow from May to August from south to north, while cold winds blow from north to south in November, December and January. Due to the climatic conditions and plenty of irrigation water from canals, different types of crops are cultivated in this district, especially cotton, wheat, sugarcane, and all types of fruits and vegetables. Mangos grown in District Tando Allahyar are famous all over the country.

## 2.4 Ethnicity and Culture

Tando Allahyar has a rich traditional Sindhi culture. Women usually wear Shalwar Qameez but quite often wear the traditional dress as well i.e., Ghaghra or Parro. Traditionally, women wear bangles. Men usually wear a Shalwar Qameez distinguished by broader bottoms and a traditional Sindhi style cap. Sindhi and Urdu are the major languages of the district, followed by Seraiki and Marwari. Islam is the major religion of this district, while a small Hindu minority is also re siding in the district.

Several annual festivals are celebrated in this district. Among these, Rama Pir Mela (festival) is famous all over the country. Thousands of people, from all over the country, especially people belonging to the Hindu community, bare footed travel from long distances to visit this festival. A huge trade runs during the festival and great entertainment is provided to the visitors.[1]



**Figure 2-3: Sindhi Cap**

## 2.5 Historical / Famous Places

The famous historical places in Tando Allahyar town, i.e.

- Tample of Ramapir
- Tando Allahyar Fort
- Watayo Fakeer

### 2.5.1 Administrative Set-up

The district consists of three talukas, named: Tando Allahyar, Jhando Mari and Chamber, 19 union councils and 201 villages. There are 87 Dehs (revenue village) in the district, out of which 85 are rural, one is urban and one is partly urban.

**Table 2-1: Taluka's in Tando Allahyar**

| Tando Allahyar | Krungo Circled / Supervisory Tapas | Patwar Circles / Tapas | Number of Dehs | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | Rural | Urban | Partly Urban | Forest | Un-Populated |
| **Tando Allahyar district** | 4 | 30 | 87 | 85 | 1 | 1 | - | - |
| **Tando Allahyar taluka** | 1 | 6 | 21 | 20 | 1 | - | - | - |
| **Jhando Mari taluka** | 2 | 13 | 37 | 37 | - | - | - | - |
| **Chamber taluka** | 1 | 11 | 28 | 29 | - | 1 | - | - |
| ***Source:*** *Deh Statistics of Sindh 2008, Agriculture Census Organization.* | | | | | | | | |

## 2.6 Major Linkages

District Tando Allahyar is connecting the district to Hyderabad and MirpurKhas. It has Sanghar district in the North, Badin in South, MirpurKhas in east, Hyderabad in the west, however, it also touches to district Matiari and Tando Muhammad Khan. The district has 3 talukas and 20 union councils. District Tando Allahyar is mostly famous due to its fertile soil and agricultural production. There is a wholesale vegetable

[1] Report on Tranche Condition (2006), District Government Tando Allahyar, Sindh Devolved Social Services Program (SDSSP), Government of Sindh

market at Khawaja stop from where vegetables are transported to the megacities of the country on a daily basis. The district is well-connected with other districts through good quality roads and similarly the district headquarters, at Tando Allahyar, is connected with other talukas of the district. The total length of good quality roads is 258 km in this district.

### 2.7 Demography

In Pakistan, the male population is more than the female population and is among those four countries where life expectancy for females, at birth, is less than that of males.[2] The sex ratio in Tando Allahyar is 107 males per 100 females, which is more than the ratio at the National level that is 106.[3] Though there could be other possible reasons for such a difference in male to female ratio, one probable reason for this ratio could be underreporting of females during national surveys. Besides, a very high maternal mortality rate and poor health care at the district and provincial levels are likely to be instrumental for this difference. District Tando Allahyar, like the majority of the other districts in Sindh, is rural by its characteristics. As 78% of the population resides in rural areas as compared to the 22% that resides in the urban areas.

**Table 2-2: Demographic Stastistics: District**

| Project Area | Population | | AGR | | Average HH Size | | Housing Units | |
|---|---|---|---|---|---|---|---|---|
| | Census 1998 | Census 2017 | Census 1998 | Census 2017 | Census 1998 | Census 2017 | Census 1998 | Census 2017 |
| District Tando Allahyar | 493,526 | 836,887 | 2.41 | 2.81 | 5.80 | 5.10 | 85,091 | 164,096 |

## 2.8 Tando Allahyar Town

### 2.9 History

Tando Allahyar is one of the oldest cities in Sindh. It has seen many changes under different rulers. The Soomra dynasty ruled this region about 1,000 years ago. The Soomras came in this region after the invasion of Muhammad Bin Qasim in 712 A.D. Tando Allahyar came into being as a small village. Later on, this region was ruled by the Kalhoro dynasty, from 1717 to 1783. Under the Kalhoros' rule, a tribe named Dals was in charge of this region. The name of the Sardar of Dals was Kundhi. Hence Tando Allahyar was called Kundhi-Jiwasi. Many developments were carried out during this period. First, a military cantonment was established and other developments, especially in trade, were initiated. Many kinds of cloths were woven here, especially silk and cotton and many products made from silk were also introduced. Besides, the industries of cloth printing and leather were well developed.

In 1783 A.D, the Kalhoras were defeated by the Talpur dynasty and Sindh was divided, for administrative purposes, into seven parts, by the Talpur Mirs. Kundhi Jiwasi was awarded to Mir Fateh Ali Khan Talpur

[2] A profile for District Tando Allahyar: 2009, South-Asia Partnership Pakistan
3 Labour Force Survey 2010-11: Pakistan Bureau of Statistics

(Awal). After his death, his elder son Mir Allahyar Khan was crowned. The city is called Tando Allahyar after his name. In 1843, the British annexed Sindh and built a communication network throughout the province. They built roads, schools, dispensaries and many other civic amenities. After the independence of Pakistan, Tando Allahyar was a taluka of district Hyderabad until 2005.[4]

## 2.10 Geography

Tando Allahyar lies on $25^0$ 28' 00'' latitude and $68^0$ 43' 00''.

## 2.11 Demography

### a. Present Population

District Tando Allahyar is newly created. In 1998 the total population of the town was 85,812. The population of Tando Allahyar town has an estimated growth rate of 6.24% per annum, which means that the population will double itself in 29 years from 1998. 45% of the population is below 15 years of age and 2.83% is 65 years or above. According to the latest census of 2017 Population of Tando Allahyar town is 156,562. The table below depicts the past population growth trend of Tando Allahyar.

**Table 2-3: Comparison of Past and Present Population Statistics**

| Area | Population | | AGR % | | Average HH Size | |
|---|---|---|---|---|---|---|
| | Census 1998 | Census 2017 | Census 1998 | Census 2017 | Census 1998 | Census 2017 |
| **Tando Allahyar MC** | 85,812 | 156,562 | 3.02 | 3.22 | 7 | 5.2 |
| **Tando Allahyar Taluka** | 231,814 | 395,996 | 2.41 | 2.85 | 5.8 | 5.1 |
| **Tando Allahyar District** | 493,526 | 836,877 | 2.41 | 2.81 | 5.8 | 5.1 |
| **Source: Census 1998, and 2017** | | | | | | |

### b. Future Projections

| Table 2-4: Future Projections for Tando Allahyar | | | | |
|---|---|---|---|---|
| **S. No.** | **Year** | **Tando Allahyar Town** | **Tando Allahyar Taluka** | **Tando Allahyar District** |
| 1 | 1998 | 85,812 | 231,814 | 493,526 |
| 2 | 2017 | 156,562 | 395,996 | 836,877 |
| 3 | 2022 | 183,445 | 455,735 | 961,255 |
| 4 | 2027 | 214,944 | 524,486 | 1,104,117 |
| 5 | 2032 | 251,851 | 603,608 | 1,268,212 |
| 6 | 2037 | 295,096 | 694,667 | 1,456,696 |
| **Source:** Census 2017 and Consultants Projections | | | | |

[4] Sindh Union Council and Community Economic Strengthening Support Programme.

In 1998 Population of Tando Allahyar MC was 85,812 and in 2017 census population of Tando Allahyar jumped to 156,562 Based on the annual growth rate of 2017 census population i.e. 3.22% of Municipal committee, Taluka, and District of Tando Allahyar is projected as under:

## 2.12 Urban Morphology

Initially, after the construction of the railway track in 1906, the city started expanding on both sides of railway track. Later, the construction of 'Canals' created more difficulties in its traditional linear growth pattern and resulted in thickly populated and congested development.

The total built-up area of the city in 2004 was approximately 4.55 sq. km (1,125 Acres) and reached up to 7.80 sq. km (1,900) in 2016 (source Google Earth). The city extended in three directions constantly i.e. northern part along the railway track, southern part and western part of the town area. During last 10 years, the town spread 58% in its built-up area. The city grew mainly in north-south and east-west directions. The administrative complex and offices are situated along Nasurpur Road. District headquarter town can be divided into two tracts northern and southern tracts.

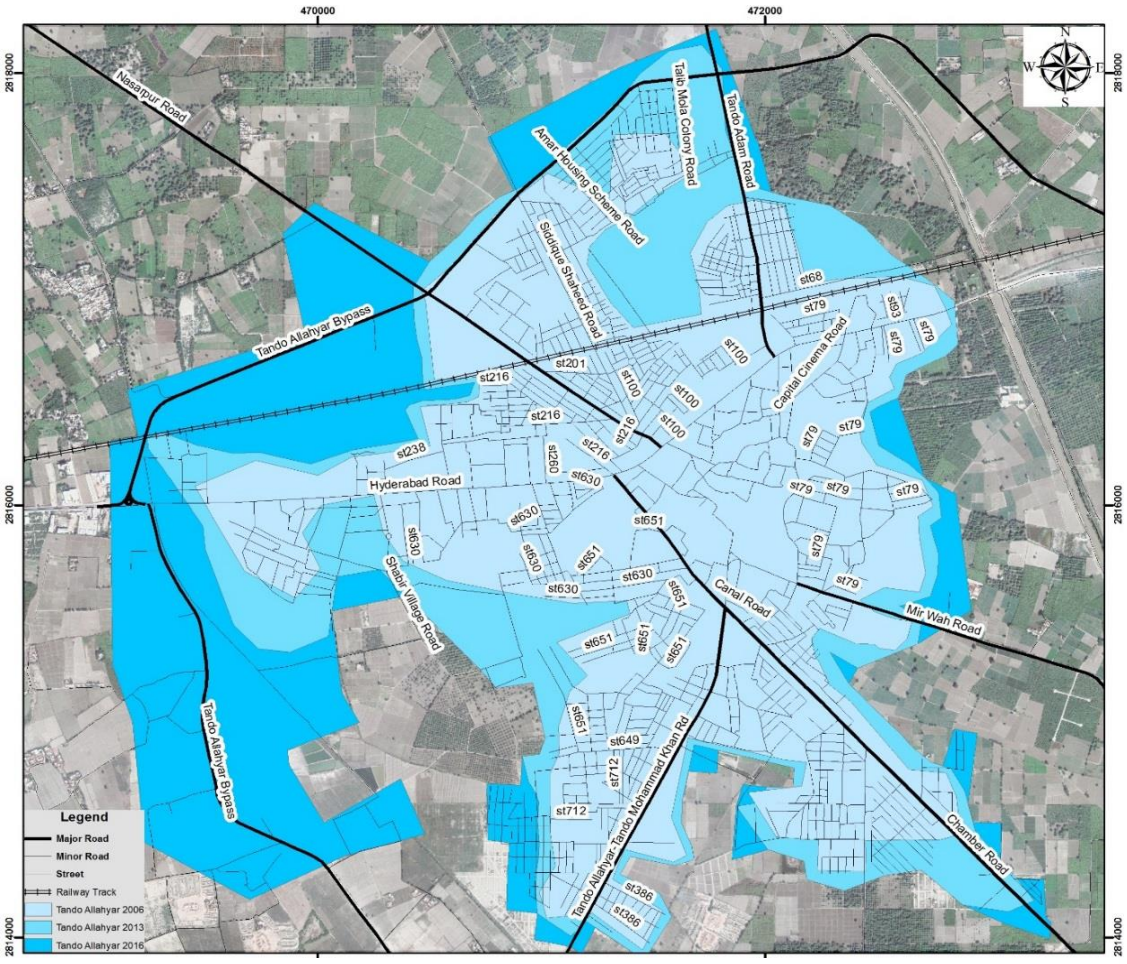



**Figure 2-4: Historical Growth of Tando Allahyar**

## 2.13 Land Use and Spatial Analysis

The consultant's town's boundary comprised on almost 4,200 acres in which approximate 30% area is covered by residential purposes and as Tando Allahyar 's economy based on agriculture activities so in land use, it contributes about 55% to boundary limits.

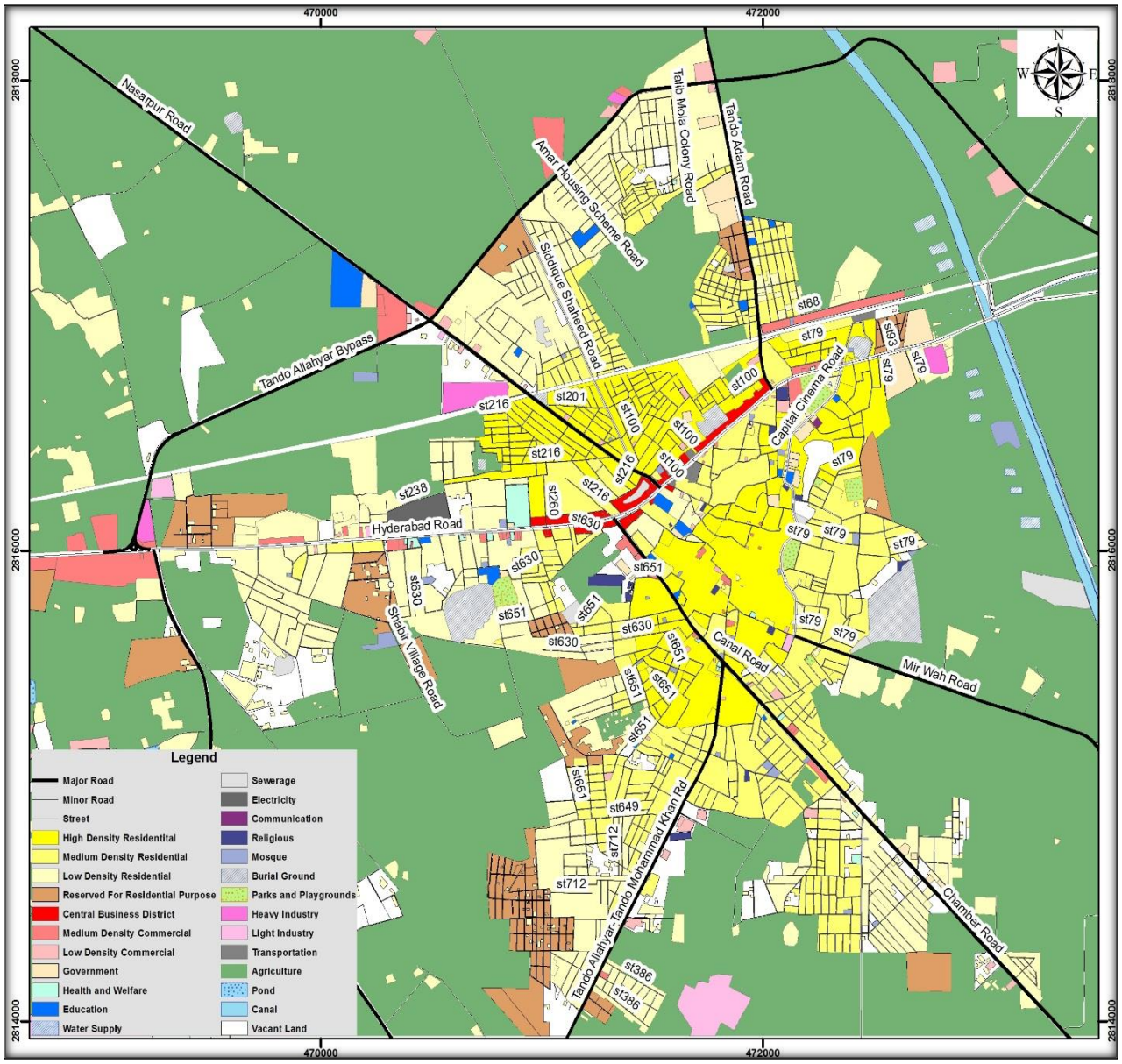



**Figure 2-5: Land use Map of Tando Allahyar Town**

## Land use Classification and Percentages

| TANDO ALLAHYAR (URBAN BOUNDARY) | | | | 4198.55 | Acres |
|---|---|---|---|---|---|
| CATEGORIES | LANDUSE CLASSIFICATION | | | AREA (ACRES) | % |
| URBAN | Residential | Residential | Low Density Residential | 519.8 | 12.4 |
| | | | Medium Density Residential | 292.9 | 7.0 |
| | | | High Density Residential | 248.4 | 5.9 |
| | | | Mix Development | 49.8 | 1.2 |
| | | | Proposed Housing Schemes | 142.9 | 3.4 |
| | **Sub Total** | | | 1253.9 | 29.9 |
| | Commercial | Commercial | Low Density Commercial | 11.0 | 0.3 |
| | | | Medium Density Commercial | 42.4 | 1.0 |
| | | | High Density Commercial | 0.9 | 0.0 |
| | **Sub Total** | | | **54.3** | **1.3** |
| | Parks and Playground | Parks and Playground | Parks and Playgrounds | 15.6 | 0.4 |
| | **Sub Total** | | | 15.6 | 0.4 |
| | Amenities | Institutional | Education | 15.4 | 0.4 |
| | | | Public Administration | 26.1 | 0.6 |
| | | | Health And Welfare | 7.0 | 0.2 |
| | | | Religious | 16.1 | 0.4 |
| | | Utilities And Municipal Service Facilities | Electricity | 8.2 | 0.2 |
| | | | Sewerage | 0.6 | 0.0 |
| | | | Communication | 0.3 | 0.0 |
| | | | Water Supply | 4.8 | 0.1 |
| | | Burial Ground | Burial Ground | 32.8 | 0.8 |
| | **Sub Total** | | | 111.3 | 2.7 |
| | Industrial | Manufacturing | Small-Scale Manufacturing/ Light Industry | 50.1 | 1.2 |
| | | | Large-Scale Manufacturing/ Heavy Industry | 12.7 | 0.3 |
| | **Sub Total** | | | 62.8 | 1.5 |
| | Transportation | Transportation | Transportation | 181.9 | 4.3 |
| | **Sub Total** | | | 181.9 | 4.3 |
| | **Sub Total** | | | 1679.8 | 40.0 |
| NON-URBAN | Agriculture And Forestry | | Agricultural | 2310.5 | 55.0 |
| | **Sub Total** | | | 2310.5 | 55.0 |
| | Water Bodies | | Canal | 17.5 | 0.4 |
| | | | Water Bodies | 3.2 | 0.1 |
| | **Sub Total** | | | 20.7 | 0.5 |
| | Vacant Area | | | 187.5 | 4.5 |
| | **Total** | | | 187.5 | 4.5 |
| **TOTAL** | | | | **4198.5** | **100.0** |

*Source: Spatial Analysis done by Consultants*

## 2.14 Existing Zonal Plan

**Zone 1:**
Zone 1 is the CBD with lot of retail Shopping centers namely Captain Shopping Mall, Ali Usama Shopping and House, Bozdar Market, Hafiz Super Mart etc.
In addition, it has trade shops such as Rana Traders, Amin Computers and Mobile Shops and Centres with Lot of Banks also present here.

Zone 1 also got historic sites such as Ramdev Mandir and Dragah Sakhi Moj Darya.This zone also has Police station and Main Bus Stop.

**Zone 2:**
Zone 2 has High Density residential such as shahbaz colony and Zardari colony. Some area in this zone is reserved for future residential purpose.

Amar Housing Scheme and Talib Mola Colony are medium density residential development in grid format.

There are lots of school in this zone such as Prestige learner's academy, Training Centre, Government High school, SEF Assisted School (SAS), the leads Academy.
This zone has low density commercial along the road. This zone also contain TandoAllayYar railway station.

**Zone 3:**
Zone 3 has Lots of Low density Residential area with substantial area reserved for future residential reserve. This zone also has some health facilities most important being civil Hospital, Jamali medical Centre along Hyderabad road. It also has DC Office TandoAllah Yar.

This zone is also characterized by industry namely Almas roller flour mills and Illyas Pawila factory. In addition it also has medium density commercial zone. It also contain Bakra Mandi.Grid Power Station Tando Allahyar also exist here.

**Zone 4:**
It has compact high density residential development. This zone also have post office.

**Zone 5:**
Low density residential with high density commercial in the area that is near to CBD.Reserved Land for Residential development.

It consist of burial ground, schools and colleges and shows future development scenario toward Rashidabad. This zone also has district education office Tando Allahyar.

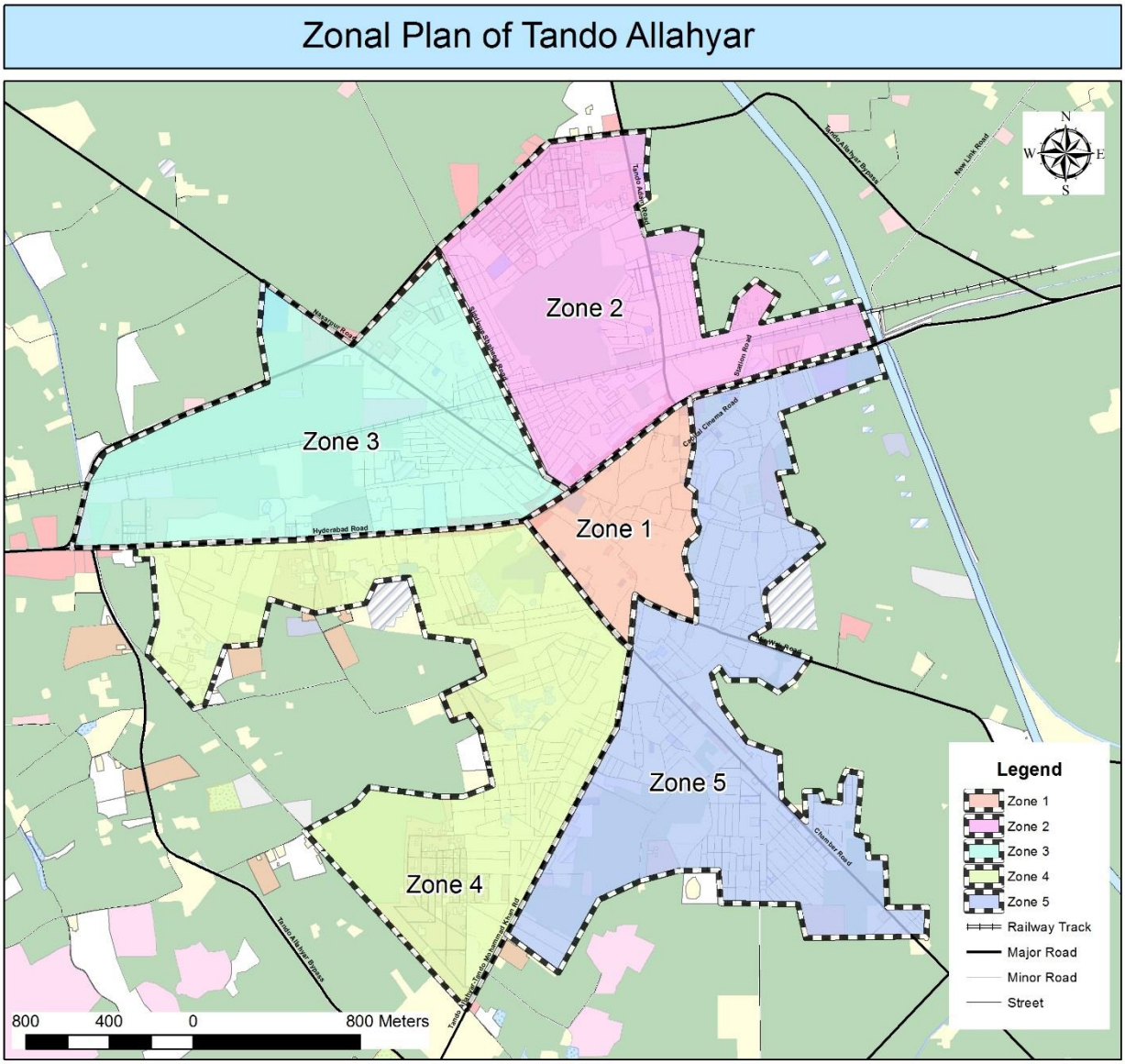



**Figure 2-6 : Existing Zonal Plan**

# 3. VISION FOR STRATEGIC DEVELOPMENT PLAN OF TANDO ALLAHYAR

Having gone through a detailed process of data collection and evaluation in the previous stages of the study and obtaining citizens input through the Consultative workshops with the stakeholders, the Consultants have identified development issues in the various sectors and provided sector wise strategies to resolve issues in an integrated manner. The issues are running of the development programmes. As funds are never unlimited, it would be utmost necessary to concentrate on projects that being meaningful and quick relief in the life of common man and significantly the quality of life. In the sections of the Report to follow, sector wise development strategies are listed. The focus should be to select projects which have a strong sequential links is the form of a "package" rather than stand-alone project.



For Vision Formulation, a Consultative workshop was held in Hyderabad (Divisional Headquarter) at Indus Hotel on November 08, 2018 in coordination with Directorate of Urban Policy & Strategic Planning (DUP&SP) Planning & Development Department Government of Sindh.

The basic aim of vision formulation exercise is to have pluralistic approach to establish a shared and common vision for the development of Tando Allahyar DHQ town in the future, define its role as a leading regional centre in the Sindh province and the socio-economic uplift of the population.

## 3.1 Summation of Vision Formulation

The basic aim of vision formulation exercise is to have pluralistic approach to establish a shared and common vision for the development of Tando Allahyar DHQ town in the future, define its role as a leading regional centre in the Sindh province and the socio-economic uplift of the population.



The summations and conclusions are described hereunder:

1) Although the participants generally understood that vision

should reflect citizens and stakeholders' aspirations as to where they want to see their town in twenty years from now. However, their focus has been remained on the resolution of immediate problems namely; supply of clean drinking water, sewerage and drainage, solid waste disposal, traffic congestion and parking, better health and educational facilities, cleanliness, parks and play areas. It is clear that far flung high sounding vision statements, are meaning less for them if the immediate problems are not urgently solved.

2) The participants showed concern regarding high rate of population growth and migration. Urbanization and uncontrolled land use conversion is eating away lots of urban agricultural land and breaking social fabric of residential communities. Need for land management system has been stressed.
3) The socio- economic uplift of the population has been mentioned by most participants, which include provision of basic needs of housing facilities with sustainable utility services, health, education, parks and playgrounds, employment and income generation.
4) Peace, safety, security and proper governance are envisioned by the participants as the ultimate goal for the twenty year Tando Allahyar's Strategic Development Plan. Whereas the Vision will remain static, the path to reach the vision may be subject to adjustments to account for ground realities



## 3.2 Tando Allahyar's Vision Statement

The visioning process stems from the Stakeholders' Vision of the town which have been translated into tangible and concrete targets. The discussions in the Workshop that most people want to see:

*Where a lot of investment is expected to be made;*
***The priority will first be given to improve the Core Urban Area of DHQ town. And then could go to remaining town and Peri-urban areas.***

***Existing utilities including water supply, sewerage & drainage as well as facilities are in bad state of repairs due to shortage of funds. The government should make sufficient fund allocations for the repairs and rehabilitation of existing facilities.***

### TANDO ALLAHYAR VISION 2037

**"The city full filling all the basic needs, such as housing, water supply and sanitation, in clean and sustainable pollution free environment, with education and health for all, along with growth in local and regional economy with increase in employment, incomes and related skills development to emerge as well planned modern city with peace, security and prosperity like some of the best most livable cities in the world."**

# PROPOSED MASTER PLAN FOR TANDO ALLAHYAR TOWN

# 4. PROPOSED MASTER PLAN OF TANDO ALLAHYAR

## 4.1 Spatial Pattern

Tando Allahyar is sandwiched between Hyderabad and Mirpur Khas. From northwest to northeast Matiari, Tando Adam and Sanghar are connected and from southwest to southeast Tando Muhammad Khan, Chamber and Mirwah are accessible. It is one of the important town of southern Sindh and it has its own cultural values.

The land of Tando Allahyar is flat and extensive fertile because it constitutes the rich alluvial deposits of river Indus. The area is part of the Southern Indus Basin, which is situated at the south of the Sukkur rift. The area's geology is primarily composed of sedimentary rocks. Naseer Canal runs through District Tando Allahyar, it irrigates almost whole of the district with the help of several branch canals and water courses. Branch canals of the Khesana Canal also irrigate the western part of the district.

District Tando Allahyar is mostly famous due to its fertile soil and agricultural production. There is a wholesale vegetable market at Khawaja stop from where vegetables are transported to the megacities of the country on a daily basis. The district is well-connected with other districts through good quality roads and similarly the district headquarters, at Tando Allahyar, is connected with other talukas of the district. The famous historical places in Tando Allahyar town, are Temple of Ramapir, Tando Allahyar Fort and Watayo.

Tando Allahyar is one of the oldest cities in Sindh. It has seen many changes under different rulers; from Soomras, Muhammad Bin Qasim, Kalhoros, Talpur Mirs and finally to British. After the independence of Pakistan, Tando Allahyar was a taluka of district Hyderabad until 2005.[5] Tando Allahyar was initially called Kundhi-Jiwasi in times of Kalhoros. Afterwards due to Talpur ruler Mir Allahyar Khan, the city is called Tando Allahyar.

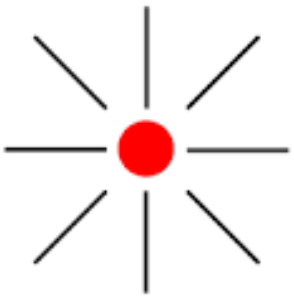
Initially, after the construction of the railway track in 1906, the city started expanding on both sides of railway track in linear fashion. Later, the construction of 'Canals' created more difficulties in its traditional linear growth pattern and the city grew in north-south and east-west directions, resulted in thickly populated and congested development.

However, present town of Tando Allahyar can be divided into two tracts northern and southern tracts due to presence of two parallel connections i.e. railway line and N-120 Hyderabad – Mirpurkhas Road. In recent times, the city is extended in three directions; northwest along Nasarpur Road, west along Bypass Road, and in southwest along Tando Muhammad Khan Road. This shows overall emphasis is mainly towards western side of the town due to presence of Rashidabad as well.

[5] Sindh Union Council and Community Economic Strengthening Support Programme.

## 4.2 Basic Urban Form

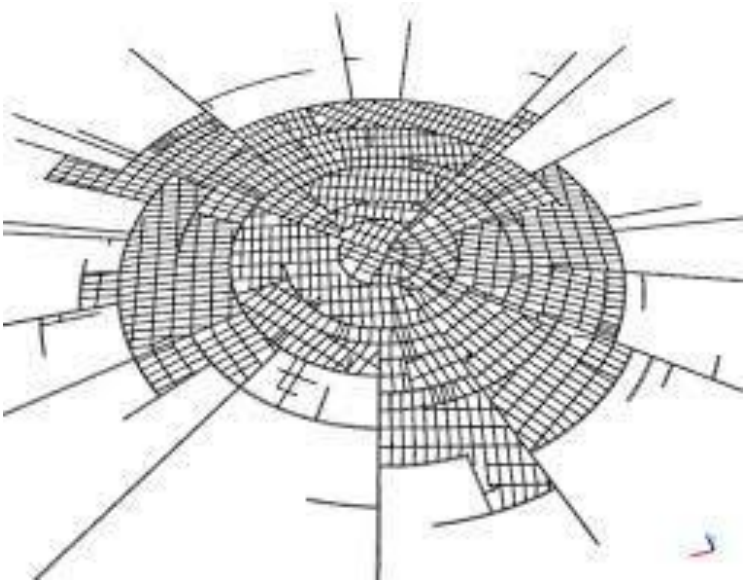
The existing town is a medium size lively and thriving urban center that fulfils the socio-economic and financial needs of its population and of surrounding towns. Specially those are not along major connectivity corridors are benefited, like Chamber and Jhando Mari Talukas.



It is no surprise then that the population demands the uniqueness and prominence of the existing town to be maintained or enhanced in the future plan. During the stakeholder's conference, the town elders insisted that any future urban development detached from the existing town making the existing town a redundant, will not be acceptable to them.

The existing core town would naturally be the physical nucleus of the future town, and the future development will radiate from it in all directions in form of different sectors.

At present three major radial roads of Nasarpur, Tando Jam and New Link are in northern tract and three major radial roads of Tando Muhammad Khan, Chamber and Mirwah are in southern tracts. Most of these roads are converging to the town center and two existing Bypasses of Tando Allahyar are providing northern and western connections with most of radial roads. However, the main spine is still N-120 Hyderabad – Mirpur Khas Road, which connects Tando Allahyar with the Hyderabad and Mirpur Khas Towns.



Since this town is not large enough in terms of its spatial spread then its projected future population, thus the alignment of three bypasses are made; Northern, Western and Southeastern Bypasses. Northern Bypass is a newly proposed, Western Bypass is an upgradation of Kolachi Road and Southeastern Bypass is already under construction.

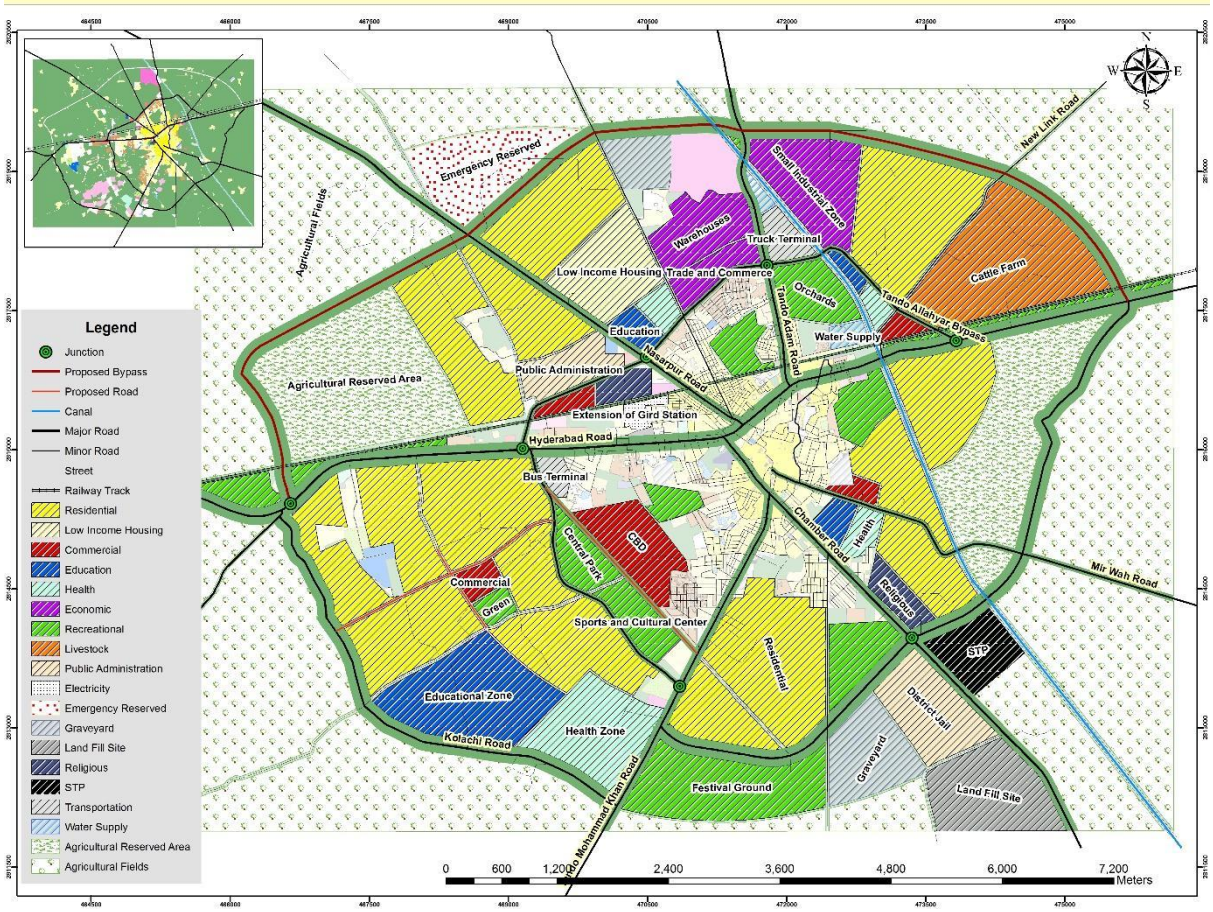
In this way Tando Allahyar has two parallel bypasses in north, two parallel bypasses in west and a bypass in southeast of the town. And in addition interconnection of the radiating roads with the proposed New Bypasses around the proposed master plan, will keeps the development compact.

## 4.3 Proposed Master Plan

The Proposed Master Plan for Tando Allahyar has been prepared with the consideration of three phases as follows:

i. Immediate Phase - Immediate Action Plan
ii. Short Term Phase - Priority Projects
iii. Long Term Phase – Strategic Development Plan

**Proposed Master Plan for Tando Allahyar Town**




The total extent of the area included in the overall proposed Tando Allahyar Master Plan is 12,500 acres approx. for a population of 295,100 by 2037. In this way, Tando Allahyar Town in next twenty years is expected to have population density of 24 persons per acre and overall twelve housing units per acre with an average household size of 5.2.

The hallmark of the plan is that it is **compact without being congested**. As the future expansion of the Tando Allahyar Town is expected to be large, thus the complete Proposed Tando Allahyar Master Plan is

catering for all the needs of a full-fledged metropolis of the future. Thus the plan will afford balanced development containing all required land uses.

The overall structure of the plan is disc shaped (circular and flat plate), formed with curves of three bypasses i.e. Northern, Western and Southeastern; with two parallel spines i.e. N-120 Hyderabad – Mirpur Khas Road and Railway Line. The New CBD has been designated in between Hyderabad and Tando Muhammad Khan Roads, accessible from existing bypass via proposed road. Furthermore, four sub centers are placed in different quadrants of the proposed master plan. The other prime activities are placed around the existing town, with three bypasses in circular form. Out of three bypasses, Western Bypass is an upgradation of existing Kolachi Road, Southeastern Bypass is an under execution bypass and Northern Bypass is newly proposed around northern spatial spread with proposed activities. Thus the intersection of radial roads and bypasses will also create main junctions and forming different sectors.

Despite taking different aspects in to consideration, the Consultant suggest that the Master Planning should be reviewed every five years to estimate the land use and area requirement according to the growth rate and economic investment.

### 4.3.1 Salient Features of Planning

- As the new development of public, private and welfare; all are in western side of the town, thus the main CBD (Central Business Districts) occurs slightly towards west side of the town. The CBD is accessible from existing West Bypass vis newly proposed road.
- In addition, four sub commercial areas are also identified to reduce the burden over the main CBD; two near Rashidabad and Nasarpur Road, two at Mirwah Road and New Link Roads.
- Considering location of Tando Adam Road and existing industries; Trade and Commerce and Warehouses are placed along its one side. Moreover a much larger area for Industrial activities is proposed on other side of Tando Jam Road.
- Two transport hubs are designated; one is for public transport along Hyderabad Road in western direction and other is truck terminal along Tando Adam Road northern.
- The areas for graveyards have also been reserved at far northern and southern ends of the proposed town. However, these are accessible from Northern and Southeastern Bypasses respectively and as well as from existing local roads.
- The cattle park is proposed in the northeastern direction, accessible from Northern Bypass, Mirpur Khas and New Link Roads, to limit the town development further. It will also benefit the population of nearby villages and other settlements.
- As DHQ Hospital is newly constructed along Tando Muhammad Khan Road, large health and educational zones are suggested here, accessible from Western Bypass as well.

- Opposite to CBD; Central Park and Sports and Cultural Complex are proposed. Further two large recreational zones are placed along Tando Muhammad Khan Road and Chamber Road.
- Since District Commissioner Office is at Nasarpur Road, the new public administration area is proposed behind it along existing North Bypass, to serve and manage this beautiful city of Tando Allahyar. Moreover a District Jail is also suggested along Chamber Road and Southeastern Bypass.
- Along Hyderabad and Mirpur Khas Roads, the areas have been reserved for agriculture inside proposed bypass, as these areas are benefitted with the existing irrigation network. This will be helpful in restricting housing development and preserving the agricultural farms from the onslaught of the housing projects by private sectors.

### 4.3.2 Northern, Western and South-Eastern Bypasses

Considering the existing Kolachi Road, Bypass under execution and need of northern bypass; a combination of three bypasses is suggested despite of typical ring road. Other than connectivity at Tando Muhammad Khan Road, these bypasses are in continuous ring form. The further detail is as follow:

i. Western Bypass: The unplanned development is spreading mainly along and in between Hyderabad and Tando Muhammad Khan towards Rashidabad, thus a Kolachi Road is suggested as Western Bypass.
ii. Southeastern Bypass: A bypass is under construction starting from Tando Muhammad Khan Road south of the town and ending at Mirpur Khas Road towards east. Thus it is termed as Southeastern Bypass of Tando Allahyar Town.
iii. Northern Bypass: There is also a need to limit the northern development in proper form, a Northern Bypass is proposed starting from Rashidabad in west and ending at Mirpur Khas Road, where it meets Southeastern Bypass.

The recommendations are to increase the right of way i.e. 200 feet with urban forestation of 200 feet wide on both sides of the bypasses. As the areas on both sides of the bypasses will attract many developers. The land two hundred feet on both sides of the bypasses should be notified for development control where only planting of local trees should be allowed. For existing north and west bypasses, it is suggested to increase the right of way i.e. 100 feet with urban forestation of 50 feet wide on both sides of the existing North and West Bypasses.

### 4.3.3 Radial Roads – Regional Connectivity

All proposed radial roads are existing major roads, providing transport connectivity with other urban and rural regional areas. Most of these roads are converging to core urban area, or in other words these roads are originating from the existing town. In this way, the existing town will remain focal point of all development along the roads. However, these roads are also serving as vital radial regional connections.

As a result, there are eight proposed radial roads with increased ROW, which will serve as future regional connections. These roads includes; Hyderabad, Mirpur Khas, Tando Muhammad Khan, Nasarpur, Tando Adam, Chamber, Mirwah and New Link Roads. However it is very important to control upfront development along the major roads. Likewise existing and proposed Bypasses, on both sides of major roads planting of local trees is al
.so highly recommended.

### 4.4 Proposed Land Use Zoning

The proposed land use zoning is broadly based on NRM Standards[6]. The NRM has not been revised since decades, thus the Consultant have added new land uses in the prescribed categories, as primary zoning i.e. Level-1. Further, as per the contextual requirement of the local environment of Tando Allahyar as DHQ Town, secondary zoning i.e. Level-2, is also categorized accordingly, again in consideration to the NRM Standards[7]. The proposed land use zoning is shown in the table:

[6] Guidelines for Land Allocation to Zones in the Preliminary Design of a New Town, Table 10.3, page no. 305, National Reference Manual on Planning and Infrastructure Standards

[7] Standard Land Use Classification for Urban Jurisdictions in Pakistan, Appendix 10.1, page no. 398, National Reference Manual on Planning and Infrastructure Standards

**Table 3-1-1: Proposed Land Use Classification for Tando Allahyar**

| S.No | NRM STANDARDS | | PROPOSED LAND USE CLASSIFICATION | | |
|---|---|---|---|---|---|
| | Land Use Zoning | Land Uses (%) | Level - 1 Functional Zoning | Areas (acres approx.) | Land Uses (%) |
| 1 | Residential | 40-45% | Residential | 5,112 | 40.8% |
| 2 | Commercial | 2-3% | Commercial | 342 | 2.7% |
| 3 | Industrial | 2-10% | Economic | 1,007 | 8.0% |
| | | | Livestock | | |
| | | | Industrial | | |
| 4 | Institutional | 3-5% | Health and Welfare | 1,278 | 10.2% |
| | | | Educational | | |
| | | | Religious | | |
| | | | Public Administration | | |
| 5 | Community Open Spaces | 4-6% | Recreational | 1,118 | 8.9% |
| 6 | Graveyards | 2-3% | Graveyards | 310 | 2.5% |
| 7 | Arterial Circulation & Terminals | 15-20% | Transportation | 1,347 | 10.7% |
| | | | Utilities and Services | | |
| 8 | Protected Reserved | 15-25% | Urban Forestation | 2,025 | 16.1% |
| | | | Agriculture | | |
| | | | Water Bodies | | |
| | | | Vacant / Reserved | | |
| | Total Area of Proposed Master Plan of Tando Allahyar Town | | | 12,539 | 100% |

The total area requirement for full fledge metropolis will be around 12,500 acres. As shown in the table of proposed land use classification, the percentage of commercial zone is slightly lower, in comparison to the NRM standards. Since the town has a trend of medium density development, thus it is expected that most of the commercial development will required less space in comparison to other towns. However, the proposed institutional area is of higher value, as it will also contain residences for labor, cottage industries, employees / staff and some related commercial activities are also associated with institutional areas. In this way, institutional area is sharing the commercial and residential load as well.

| S. No | PROPOSED LAND USE CLASSIFICATION FOR TANDO ALLAHYAR TOWN | | | | | | |
|---|---|---|---|---|---|---|---|
| | Level - 1 Functional Zoning | Level - 2 Functional Zoning | Areas (acres approx.) | | Land Uses (%) | Areas (acres approx.) | Land Uses (%) |
| 1 | Residential | Existing Residential | 1,254 | 5,112 | 40.8% | 5,112 | 40.8% |
| | | Proposed Residential | 3,858 | | | | |
| 2 | Commercial | Existing Commercial | 54 | 342 | 2.7% | 342 | 2.7% |
| | | New Central Business District | 184 | | | | |
| | | Sub Coomercial - Rashidabad | 30 | | | | |
| | | Sub Coomercial - Nasarpur Road | 28 | | | | |
| | | Sub Coomercial - New Link Road | 21 | | | | |
| | | Sub Coomercial - Mirwah Road | 25 | | | | |
| 3 | Economic | Trade and Commerce | 82 | 237 | 1.9% | 1,007 | 8.0% |
| | | Warehouses | 155 | | | | |
| 4 | Livestock | Cattle Farms | 469 | 469 | 3.7% | | |
| 5 | Industrial | Existing Industries | 63 | 301 | 2.4% | | |
| | | New Industrial Area | 238 | | | | |
| 6 | Health and Welfare | Existing Health and Welfare | 7 | 362 | 2.9% | 1,278 | 10.2% |
| | | Health and Welfare Zone (DHQ Extension) | 258 | | | | |
| | | Health Area - Nasarpur Road | 34 | | | | |
| | | Health Area - New Link Road | 23 | | | | |
| | | Health Area - Mirwah Road | 40 | | | | |
| 7 | Educational | Existing Educational | 15 | 461 | 3.7% | | |
| | | Educational Zone | 356 | | | | |
| | | Educational Area - Nasarpur Road | 37 | | | | |
| | | Educational Area - New Link Road | 16 | | | | |
| | | Educational Area - Mirwah Road | 37 | | | | |
| 8 | Religious | Existing Religious | 16 | 118 | 0.9% | | |
| | | Religious at Bypass | 44 | | | | |
| | | Religious at Chamber Road | 58 | | | | |
| 9 | Public Administration | Existing Public Administration | 26 | 337 | 2.7% | | |
| | | New Public Administration Area | 107 | | | | |
| | | District Jail | 204 | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | Recreational | Existing Parks and Playground | 16 | 1,118 | 8.9% | 1,118 | 8.9% |
| | | Central Park | 81 | | | | |
| | | Sports and Cultural Complex | 86 | | | | |
| | | Amusement Park | 325 | | | | |
| | | Festival Grounds | 181 | | | | |
| | | Park and Playground near Rashidabad | 29 | | | | |
| | | Orchards | 370 | | | | |
| | | Green | 30 | | | | |
| 11 | Graveyards | Existing Graveyards | 33 | 310 | 2.5% | 310 | 2.5% |
| | | Graveyard in North | 87 | | | | |
| | | Graveyards in South | 190 | | | | |
| 12 | Transportation | Existing Transportation | 182 | 888 | 7.1% | 1,347 | 10.7% |
| | | Public Transport Terminal at Hyderbad Road | 27 | | | | |
| | | Truck Transport Terminal at Bypass | 49 | | | | |
| | | Road Network | 630 | | | | |
| 13 | Utilities and Services | Existing Utilities and Services | 14 | 459 | 3.7% | | |
| | | Water Supply | 35 | | | | |
| | | Sewerage | 126 | | | | |
| | | Land Fill | 262 | | | | |
| | | Electricity | 22 | | | | |
| 14 | Urban Forestation | Urban Forestation | 505 | 505 | 4.0% | 2,025 | 16.1% |
| 15 | Agriculture | Agricultural Reserved | 1,160 | 1,160 | 9.3% | | |
| 16 | Water Bodies | Canals and Ponds | 112 | 112 | 0.9% | | |
| 17 | Vacant | Emergency Reserved | 248 | 248 | 2.0% | | |
| | | Total Area for Future Development of Tando Allahyar | 12,539 | 12,539 | 100% | 12,539 | 100% |

### 4.4.1 Residential Zone

The important features of the proposed master plan is accommodation of all income groups with diverse options for housing. Therefore in total 5,100 acres of residential land use is proposed, which will create twelve housing units per acre on average. Thus in overall town more than 61,000 housing units are expected to be in town by 2037.

There are existing vacant land parcels in overall town, specially in north and west of the core urban area have a considerable potential of infill development for residential use. This will somehow fulfill the partial need of new migrants coming from other areas in search of better living in the immediate phase. For low income group in short term phase (priority project) land of 210 acres along Nasarpur Road is proposed for medium to high density development. While for other income groups, mixed density (low, medium and high) residential areas are proposed. Moving ahead, for the long term phase, areas are also being reserved for residential development as per future requirement, which will also include apartment buildings.

| New Residential Scheme [8] | | |
|---|---|---|
| **S. No.** | **Land Use** | **SBCA Standards** |
| 1 | Residential | 55% max |
| 2 | Commercial | 5% max |
| 3 | Parks | 5% min |
| 4 | Playgrounds | 5% min |
| 5 | Public Uses | 5% min |
| 6 | Educational | 3% min |
| 7 | Roads | 22% min |

The following land use division is for New Residential Schemes according to Sindh Building & Town Planning Regulations of Sindh Building Control Authority:

The Level II secondary zoning of residential land use will be as follow:

- **Houses**
  Taking the existing trend of housing, it is recommended to concentrate more towards houses, as the cultural context favor low to medium density housing development. However, it is preferred to follow the standards and give ample spaces to neighborhood facilities as well.

[8] Land Allocation for New Residential Schemes as per Sindh Building & Town Planning Regulations, Chapter 20.4.1, page no 124.

The following guidelines are for houses zone development:

| Permitted Uses | Allied Permissible Uses | Prohibited Uses |
|---|---|---|
| - Houses<br>- Neighborhood level facilities like small commercial, parks, playgrounds, schools, religious, parking | - Utilities and services<br>- Road accessibility<br>- Pedestrian friendly streetscape<br>- Mixed-used structures | - Apartments<br>- Large health and educational<br>- Large commercial activities |

| Houses - Applicable SBCA Bylaws[9] | | | | | |
|---|---|---|---|---|---|
| **Types** | **Densities per acre** | **Plot Sizes sq.yds** | **Foot Print FP %** | **Floor Area Ratio – FAR** | **No. of Floors** |
| Low Density Houses | 50 – 100 | 1,000 or above | 40% - 45% | 1:1 | G+2 (max) |
| Medium Density Houses | 100 - 200 | 400 to 999 | 50% - 55% | 1:1 - 1:1.5 | G+2 (max) |
| High Density Houses | 200 - 300 | 120 to 399 | 65% - 75% | 1:1.8 - 1:2 | G+2 (max) |

- **Apartments**

  In Tando Allahyar Town, the trend of vertical residential and commercial development, in form of apartments is already existing. Secondly, as new migrants are expected from other urban areas as well, thus there is a need to fulfill the modern residential need like apartments. On the other hand, apartments are more effective in accommodating large number of households in less acres of land due to increased density in comparison to houses. It is not necessary to build a concrete jungle, however with better design and new ideas different type of walkable as well as high rise could be made. The main focus should be to provide open and green areas as breathing spaces in between apartment buildings as per the standards.

  The following guidelines are for apartment zone development:

| Permitted Uses | Allied Permissible Uses | Prohibited Uses |
|---|---|---|
| - Apartments<br>- Designated parking areas<br>- Small commercial<br>- Parks and playgrounds<br>- Prayer areas | - Utilities and services<br>- Road accessibility<br>- Pedestrian friendly streetscape<br>- Mixed-used structures | - Large health and educational institution<br>- Large commercial activities |

[9] Houses/Bungalows, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.2, page no 141.

| Apartments - Applicable SBCA Bylaws[10] | | | | | |
|---|---|---|---|---|---|
| **Types** | **Densities[11] per acre** | **Apartment Sizes sq.ft** | **Foot Print FP %** | **Floor Area Ratio - FAR** | **No. of Floors** |
| Low Density Apartments | 325 | 2,500 – 4,000 | 40% | 1:2.75 | G+6 (max) |
| Medium Density Apartments | 500 | 1,500 – 2,500 | 40% | 1:2.75 | G+6 (max) |
| High Density Apartments | 650 | 1,000 - 1,500 | 40% | 1:2.75 | G+6 (max) |

### 4.4.2 Commercial Zone

This zone is mainly mixed use commercial with state of art buildings. The smart development will be preferred from medium to high density and less foot print, in order to utilize the land efficiently with sufficient open and green spaces.

The Level II secondary zoning of commercial land use will be as follow:

- **New CBD (Commercial Business District)**
  Considering the shape and growth of the town, the New CBD has been located in the area of central attraction accessible from existing West Bypass, Hyderabad and Tando Muhammad Khan Roads via newly proposed road. The main land uses of the CBD will be regional corporate headquarters, financial centers, media houses, IT / software, specialized production service and retail shopping outlets with dedicated parking and large open spaces. This will integrate a great deal of financial, business, culture, service institutions and lots of supporting facilities; such as business office buildings, large shopping malls, hotels and apartments, etc. These will be developed with perfect and convenient traffic, communications and other infrastructures, favorable economic development, environment friendly places; which are convenient for commercial activities.

  Tando Allahyar and it's environ have many sites of historical significance including mainly Temple of Ramapir, Tando Allahyar Fort and Watayo. Considering the potential of tourism, the New CBD area will also accommodate convention center, expo center, hotels, shopping malls, exhibition ground, etc.

[10] Flat Sites Category, Zoning Regulations /Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.4, page no 144.
[11] Residential Density Standards, as per Sindh Building & Town Planning Regulations, Chapter 20.3, page no 123.

- **Sub Commercial Centers**

  In continuation to the main CBD, it is recommended to place sub commercial areas in different quadrants of the town, to share the burden of commercial activities. Thus, four sub commercial centers are proposed; two near Rashidabad and Nasarpur Road, and two at Mirwah and New Link Roads, to accommodate commercial facilities. Further small commercials within the residential areas will be formed for retail commercial activities of everyday goods required to fulfill the daily need of the residents.

  The following guidelines are for commercial zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Corporate head office buildings, towers<br>- Huge markets, malls, outlets<br>- Large public squares and parks<br>- Dedicated parking lots / spaces | - Pedestrian friendly streetscape<br>- Mixed-used buildings<br>- Medium to High Rise Apartments<br>- Fueling stations |
| **Applicable SBCA Bylaws[12][13]** | **Prohibited Uses** |
| - Plot Sizes: 1,000 sq.yds. (min)<br>- FP: 40% - 65%<br>- FAR: 1:2.75 – 1:5.5<br>- Floors: G+6 & G+8 (max) | - Residential housing schemes<br>- Large health and educational institution |

### 4.4.3 Economic Zone

In view of contextual requirement, the emphasis is given to other economic activities also, instead of only industrial development. The main criteria is to rely on local economic potentials, which mostly related to technical service and upcoming new type of markets.

The Level II secondary zoning of economic land use will be as follow:

- **Trade and Commerce**

  In north side of the town along existing north bypass, trade and commerce area is positioned. This will provide in and out trading activities of the region specially to other areas of the district. It will includes grains, fruit and vegetable markets, wholesale markets, slaughter house, storage areas etc.

- **Warehouses**

  The warehouses area is proposed next to trade and commerce, accessible from Tando Adam Road via existing north bypass. For all of these trading activities large to small scale warehouses

[12] Commercial, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.3, page no 143.

[13] Flat Sites Category, Zoning Regulations /Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.4, page no 144.

will be required, comprises of general, bulk, liquid, dry and cold storage as well. These should be well equipped with all the required technology of good storage and management like CCTV surveillance, in and out data entry.

This area will also provide space for technical services like mechanical workshops and spare parts (auto mobile repairing), building construction materials, home depots, furniture market, housewares, food and beverages, computer hardware etc. However with the passage of time, technological advancement and changing needs; new requirement will come up to cater to the job market through new economic opportunities and activities.

The following guidelines are for economic zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Warehouses and Workshops<br>- Godowns and Cold Storage<br>- Trade and Commerce Areas<br>- Showrooms or Display Centers | - Mixed-used buildings<br>- Residences for workers<br>- Fueling stations |
| **Applicable SBCA Bylaws[14]** | **Prohibited Uses** |
| - Plot Sizes:<br>  ○ Small size: upto 0.5 acres<br>  ○ Medium size: 0.5 to 5 acres<br>  ○ Large size: 5 acres or above<br>- FP: 60% - 70%<br>- FAR: 1:2.5 - 1:1.5<br>- Floors: G+1 & G+2 (max) | - Private Residential housing schemes<br>- Large health and educational institution |

### 4.4.4 Livestock Zone

Since Tando Allahyar is not only an agricultural and industrial town, local inhabitants rely on livestock for another source of income. In this regard livestock zone is placed in northeast direction along existing north bypass, to promote livestock production. The main emphasis is to be given to cattle production and their required facilities and services. In addition poultry is another requirement to fulfil through the livestock zone.

The Level II secondary zoning of livestock land use will be as follow:

- **Veterinary Hospital and College**
  A full-fledged veterinary hospital and college is proposed to cater to livestock health requirements and to produce more vet doctors.

[14] Industrial Areas, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.6, page no 145.

- **Dairy Production**[15]
  Dairy area will be facilitated with mandi / cattle market, artificial insemination center, slaughter house, milk collection unit, chiller storage unit, fodder storage and purchase, bio gas plant etc.

- **Cattle Farms with Pasture and Grazing Lands**
  Cattle area will contain mainly cattle farms that could accommodate buffaloes, cows, sheep, goats, camel, poultry and ostrich; with pasture and grazing lands around the farms.

The following guidelines are for livestock zone development:

| Permitted Uses | Allied Permissible Uses | Prohibited Uses |
|---|---|---|
| - Cattle Farms<br>- Poultry Farms<br>- Pasture and grazing lands<br>- Slaughter Houses<br>- Dairy production<br>- Veterinary services<br>- Veterinary education and training | - Low rise ancillary structures<br>- Residences of caretakers<br>- Related commercial activities<br>- Fueling stations<br>- Godowns and cold storage<br>- Cattle market | - Other than permitted and permissible |

### 4.4.5 Industrial Zone

In order to increase employment opportunities and production activities; industrial areas need to be developed. It will create more jobs, investment options, open new markets and at the end of the day will boost the economy of the town.
The following land use division is for New Industrial Estate according to Sindh Building & Town Planning Regulations of Sindh Building Control Authority:

The Level II secondary zoning of economic land use will be as follow:

| New Industrial Estate [16] | | |
|---|---|---|
| **S.No** | **Land Use** | **SBCA Standards** |
| 1 | Industrial | 70% max |
| 2 | Commercial | 1% max |
| 3 | Parks / Playground | 3% min |
| 4 | Public Uses | 6% min |
| 5 | Roads | 20% min |
| 6 | Residential | 8% min |
| No roads shall be less than 40 feet in small industries.<br>No roads shall be less than 50 feet in medium and large industries.<br>Industrial plot of 5 acres or more, residential area for labor and staff is allowed at rear. | | |

- **New Industrial Area**
  The New Small Industrial Area is proposed along Tando Adam Road. It is highly recommended to explore this reserved area according to the economic need of the town. This is more appropriate to

[15] Dairy Plots, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.8, page no 149.

[16] Land Allocation for New Industrial Estate as per Sindh Building & Town Planning Regulations, Chapter 20.4.2, page no 124.

develop small scale industries, and avoid further development of heavy industries to keep the city environment clean. It is not suggested to develop whole area at once, instead as per the need. Preferably starting from the road accessible side and keeping further area reserved for future use when firstly developed area utilized. The small scale industries will include mainly agro based industries, flour mills, rice mills, ice factories, packaging of fruits and vegetables, feeder crops, etc.

The following guidelines are for industrial zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Small Scale Industries<br>- Processing Units<br>- Manufacturing Activities<br>- Warehouses or Godowns<br>- Workshops | - Showrooms<br>- Mixed-used buildings<br>- Residences for workers<br>- Fueling stations |
| **Applicable SBCA Bylaws[17]** | **Prohibited Uses** |
| - Plot Sizes:<br>o Small size: upto 0.5 acres<br>o Medium size: 0.5 to 5 acres<br>o Large size: 5 acres or above<br>- FP: 60% - 70%<br>- FAR: 1:2.5 - 1:1.5<br>- Floors: G+1 & G+2 (max) | - Private Residential housing schemes<br>- Large health and educational institution |

### 4.4.6 Health and Welfare Zone

This zone is specifically for health and welfare related large scale activities. It will be a specialized area with high tech health facilities, social welfare and supporting services; with advance infrastructure. The aim will be to provide all specialized health solution within the town, and to serve the population beyond city borders, like nearby urban and rural localities.

The Level II secondary zoning of health and welfare land use will be as follow:

- **Health and Welfare Zone**
  Since DHQ Hospital is already shifted at Tando Muhammad Khan Road, along this, it is suggested to have further extension of DHQ Hospital with Medical and Nursing Colleges, staff residence, hostels, community and allied facilities. It is widely possible that some of these areas will be utilized for distinct health and welfare facilities in long term phase; like specialized hospitals, research and welfare centers etc. These could also include; Rehabilitation Centers, Special children, Edhi Homes (orphanage / old age / women) etc. These will also comprises of the specialized units like oncology, urology, infertility centers, organ transplantation, and specialized treatment centers, research and development centers.
- **Health Sub Centers**

[17] Industrial Areas, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.6, page no 145.

There are three sub health center proposed along Nasarpur, Mirwah and New Link Roads. These health area are marked in regards to the major radial roads and their connectivity, in order to make it accessible for other towns as well and to attract private investment in health and welfare sector.

The following guidelines are for health and welfare zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Large Hospitals<br>- Specialized treatment centers<br>- Medical College<br>- Dental College<br>- Pharmaceutical College<br>- Nursing College<br>- Laboratories and Diagnostic Centers<br>- Blood Banks<br>- Health Research Institutes | - Staff Residences (medical and paramedic)<br>- Separate Hostels for Boys and Girls<br>- Auditoriums, seminar halls, workshop spaces<br>- Community facilities (parks, playgrounds, schools, clinic, neighborhood commercial)<br>- Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations) |
| **Applicable SBCA Bylaws[18]** | **Prohibited Uses** |
| - Plot Sizes: 1.0 acre or above<br>- FP: 50%<br>- FAR: 1:1.5<br>- Floors: G+2 (max) | - Private residential housing schemes<br>- Large commercial activities |

### 4.4.7 Educational Zone

The large scale educational land uses will be development in this zone, focusing towards the global trend of education specially for upcoming generations. The aim is to create a knowledge base hub, to provide quality education in all diversified filed, in order to upgrade the livelihood of the local as well as the regional population.

The Level II secondary zoning of educational land use will be as follow:

- **Educational Zone**

  Next to Health Zone, Educational Zone is proposed which will mainly for the public sector general university, which is lacking in the town. The idea is to first introduce common educational fields like languages, humanities, applied sciences, arts, commerce, social sciences etc., which could be modified further. Afterwards broad-spectrum of new ranges of education will be added according to the demand of the society, in form of wings, departments and blocks.

  As the society is moving towards global dynamics, diversified fields of education will be prerequisite. These could include upcoming need of the job market like; engineering, business, management, finance, media, IT and software, etc. The purpose behind is to involve regional level youth in the education and research, in order to enhance the educational attainment level.

- **Educational Sub Centers**

[18] Amenity Plots, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.5, page no 145.

Similarly to health facilities, three educational areas are proposed along major connectivity corridors, to provide educational facilities in all quadrants of the town. These areas are located at Nasarpur Road, Mirwah Road and New Link Road along Naseer Canal.

In addition to academic buildings; allied facilities like administration, sports grounds, and health clubs will also be accommodated here. Since it will be the primary level university of the town, thus it will also contain large number of students, faculty and staff. This huge influx will also require residences with community facilities.

It is also proposed to provide government degree colleges for boys and girls, separately in most of these educational areas. It is suggested to accommodate all the required facilities and service like; libraries, laboratories, playgrounds, washrooms, etc. The library, data and information centers and scientific research institutes are also recommended in these areas to provide all kind of facilities for research and development in different fields.

Some of these areas will also include; poly technical college for boys and girls, women development center (working women hostels, day care centers), certified computer and IT training centers, research centers, etc. The vocational training centers are also suggested to be placed in some of these areas to cater need of under privileged youth for better skills and technical knowledge. This will provide space for skill development centers, technical education for the local and surrounding population to accommodate in the current job market.

The following guidelines are for educational zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Large scale educational areas<br>- General Education Universities<br>- Scientific Research Institutes<br>- Engineering colleges / universities<br>- Business and management schools<br>- Finance and accountancy Institutes<br>- IT and media Institutes<br>- City level libraries, book banks, data and information centers | - Staff Residences (teaching and non-teaching)<br>- Separate Hostels for Boys and Girls<br>- Auditoriums, seminar halls, workshop spaces<br>- Community facilities (parks, playgrounds, clinics, schools, neighborhood commercial)<br>- Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations) |
| **Applicable SBCA Bylaws[19]** | **Prohibited Uses** |
| - Plot Sizes: 1.0 acre or above<br>- FP: 50%<br>- FAR: 1:1.5<br>- Floors: G+2 (max) | - Private residential housing schemes<br>- Large commercial activities |

[19] Ibid

### 4.4.8 Religious Zone

In the proposed master plan two religious sites are allocated in the Tando Allahyar Town. One is opposite to New Public Administration Area at existing North Bypass. And other one is at Chamber Road considering the location of famous temple in core urban area of Tando Allahyar. These are not necessarily to be developed soon, as presently there are sufficient religious places. These will be grand religious monumental buildings and structures, to enhance aesthetic of the town. Further it is suggested to fulfill the future requirement of different religious groups in sub divisions of other areas.

The following guidelines are for religious zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Religious buildings like mosques, imam barghahs, mandir, churches, etc.<br>- Religious teaching areas<br>- Religious preaching grounds<br>- Orphanage | - Residences for religious leaders<br>- Accommodation for religious scholars, students<br>- Small parks, playgrounds, clinics, commercial<br>- Support facilities (bus stops, taxi stand, banks, fueling stations) |
| **Applicable SBCA Bylaws[2021]** | **Prohibited Uses** |
| - Plot Sizes: 1.0 acre or above<br>- FP: 50%<br>- FAR: 1:1.5<br>- Floors: G+2 (max) | - Private residential housing schemes<br>- Large commercial activities |

### 4.4.9 Public Administration Zone

The existing offices of Public Administration are mostly along Nasarpur Road. Considering future requirements, the new public administration area is also marked behind the existing area.

The Level II secondary zoning of public administration land use will be as follow:

- **New Public Administration Area**
  The public administration offices will includes District Secretariat, Development Authority, Town Committee Offices, Line Departments, Local Government Offices, Town Planning Department, Judiciary Complex, Circuit House etc.

  As Tando Allahyar is a district headquarter, in future with the rising activities more space for different public offices and institutions will be required. With this assumption future extension area for public administration need to be reserved.

[20] Ibid

[21] Religious Buildings, Plots, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.13, page no 156.

The area for public employee housing is also suggested here to cater the need of housing for public employees. This will include houses and walkable apartments for all employees, according to their grade levels and status.

- **District Jail**

  The District Jail is proposed along Chamber Road in southwest direction. This will serve the purpose of District Jail with all required needs and will also fulfill the residential requirement of the staff of various levels.

The following guidelines are for public administration zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - District Secretariat,<br>- Development Authority<br>- Town Committee Complex<br>- Line Departments<br>- Local Government Offices<br>- Town Planning Department<br>- Judiciary Complex<br>- Circuit House | - Employees Residences (for all grades)<br>- Auditoriums, seminar halls, workshop spaces<br>- Community facilities (parks, playgrounds, clinics, schools, neighborhood commercial)<br>- Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations) |
| **Applicable SBCA Bylaws[22]** | **Prohibited Uses** |
| - Plot Sizes: 1.0 acre or above<br>- FP: 50%<br>- FAR: 1:1.5<br>- Floors: G+2 (max) | - Private residential housing schemes<br>- Large commercial activities |

### 4.4.10 Recreational Zone

In the existing towns, disappearance of open spaces and non-provision of planned open spaces are seen. Thus, in the proposed master plan, recreational land use has been given a vital importance in order to create a healthy environment. Several types of regional level recreational activities are recommended like sports and cultural complex, amusement and theme parks, festival grounds etc.

The Level II secondary zoning of recreational land use will be as follow:

- **Central Park**

  Opposite to proposed Main CBD and beside the proposed Sports and Cultural Complex, a large Central Park is proposed in the town. This will be a general public park, however its sub

[22] Ibid

portions could be reserved for families (ladies and children). Thus it will also contain area for swings, sitting, walking, jogging with allied facilities of washrooms, tuck shops, parking etc.

- **Sports and Cultural Complex**

  Adjacent to Central Park and opposite to proposed Main CBD area a Sports and Cultural Complex is proposed. It will include cricket, football, hockey and other ground, cultural center and gymnasium. These type of sports facilities will be as per standards to promote domestic sports.

- **Festival Grounds**

  Along Chamber Road and at inner side of Southeastern Bypass an area is located for the purpose of Festival Grounds. Considering the location of famous temple in core urban area, local tradition and types of festivals, a large space is designated for such events. These grounds will be used for large population events like carnivals, eid festivals.

- **Amusement Park**

  The site for amusement park is proposed in southwest direction along Tando Muhammad Khan Road, outside the Southeastern Bypass. In this area large scale amusement facilities like thrilling rides in a safe and pleasant manner will be provided. Some of its area could be reserved for other recreational activities of theme parks like art park, ice park, floral garden, glow garden etc. could also be introduced as per the demand of the region. Moreover, Tando Allahyar is a regional center there is also need to locate botanical and zoological gardens. These gardens will serve not only a metropolis of future but urban and rural areas of Tando Muhammad Khan region as well.

The following guidelines are for recreational zone development:

| Permitted Uses | Allied Permissible Uses | Prohibited Uses |
|---|---|---|
| - City scale parks<br>- Large public squares<br>- Sports facilities<br>- Cultural activities<br>- Amusement area<br>- Special theme parks<br>- Regional level gardens like botanical, zoological | - Ancillary structures<br>- Accommodation for caretakers / workers<br>- Related commercial activities<br>- Fueling stations<br>- Parking<br>- Public washrooms | - Other than permitted and permissible |

### 4.4.11 Graveyards Zone

At present there are number of graveyards in the town, which have sufficient space available for immediate need. However, for long term there are two graveyard proposed one in extreme north direction along Northern Bypass and other in south of the town along Southeastern Bypass. This graveyards can be further divided according to the requirement of practicing religions in the town.

The following guidelines are for graveyard zone development:

| Permitted Uses | Allied Permissible Uses | Prohibited Uses |
|---|---|---|
| - Graveyard area | - Related commercial activities<br>- Accommodation for caretaker | - Other than permitted and permissible |

### 4.4.12 Transportation Zone

In Tando Allahyar Town, the transportation is mainly based on railway connectivity and road network of radial roads, bypasses with terminals and intersections. Road network is considered as a vehicle for economic development and social change. Efficient road network not only develops a quick and efficient transportation system but also opens up new areas previously remained closed. It brings about social integration among rural and urban sectors and greatly assists in providing access to basic amenities such as education, health facilities, etc. It brings rural areas in constant touch with urban segment of a society and creates better understanding necessary for social change and economic activities.

The Level II secondary zoning of transportation land use will be as follow:

- **Proposed Road Network**
  The proposed road network is originate from the existing radial roads (Hyderabad, Mirpur Khas, Tando Muhammad Khan, Nasarpur, Tando Adam, Chamber, Mirwah and New Link Roads) and existing bypasses i.e. at north and west. The major connecting corridors will be developed by proposing Northern Bypass parallel to existing north bypass, upgrading Kolachi Road as Western Bypass parallel to existing west bypass and under construction Southeastern Bypass. However the Hyderabad – Mirpur Khas Road still act as main spine for the Tando Allahyar Town through widening and beatification.

  All proposed Major Roads (primary, secondary and tertiary roads) of the master plan will be dual carriageways with green medians in the center; as shown:

**Table 4-1: All proposed Major Roads (Primary, Secondary and Tertiary Roads**

| S. No. | Major Roads | ROW (ft) | Forestation (ft) |
|---|---|---|---|
| i. | Southeastern Bypass (under construction) | 200 | 200 |
| ii. | Western Bypass (Kolachi Road) | 200 | 200 |
| iii. | Northern Bypass (new) | 200 | 200 |
| iv. | Hyderabad Road – N-120 | 200 | 200 |
| v. | Mirpur Khas Road – N-120 | 200 | 200 |
| vi. | Tando Muhammad Khan Road | 150 | 100 |
| vii. | Nasarpur Road | 150 | 100 |
| viii. | Tando Adam Road | 150 | 100 |
| ix. | Chamber Road | 150 | 100 |
| x. | Mirwah Road | 100 | 50 |
| xi. | New Link Road | 100 | 50 |
| xii. | North Bypass (existing) | 100 | 50 |
| xiii. | West Bypass (existing) | 100 | 50 |
| ROW – property to property distance<br>Forestation on both side of ROW | | | |

**Primary Roads:** The proposed Northern, Western and Southeastern Bypasses running on the periphery of the town and N-120 Hyderabad – Mirpur Khas Road dissecting the whole town are considered as Primary Roads. Its different segments are serving as bypasses without entering in the town. It will have a right of way of 200 feet (min) with initially a four-lane divided road, service road, median, parking, and cycle/pedestrian track and local tree plantation on both sides. In addition to the 200 feet ROW, urban forestation of 200 feet on both side are also proposed, to avoid direct / upfront development along primary roads. All primary roads crossings will be initially roundabouts with enough space for grade separated junctions in the future.

**Secondary Roads:** The secondary roads, are radial roads connecting the town with other towns and arteries connecting radial roads. It will have a right of way of 150 feet (min) with three lanes, service road, median, footpaths, parking and cycle/pedestrian tracks. These roads includes; Tando Muhammad Khan, Nasarpur, Tando Adam and Chamber Roads.

**Tertiary Roads:** The tertiary roads will have a right of way of 100 feet (min) with at least two lanes, median, footpaths, parking and cycle/pedestrian tracks. These roads includes; existing North and West Bypasses, Mirwah and New Link Roads.

- **Public Transport Terminals**

  The public transport terminal is placed along Hyderabad Road in west, at start of existing West Bypass. It is proposed in order to provide better and nearby multi intermodal transport connectivity. Since major regional communication of general public is expected via these major roads; as most of residential, educational and health related traffic will be generated and these will cover most of the town. These will be comprises of the parking for public buses, hiace, wagons, taxis; with allied facilities like ticking booths, sitting / waiting areas, washrooms, shops and required residence for the drivers and staff.

- **Truck Terminals**

  Towards north of the town, along Tando Adam Road a truck terminal is proposed. Since from this point all industrial and economic activities are connected, it is found more appropriate location for heavy traffic and goods transport. The proposed terminal will help in transporting goods from / into the town, which will benefit and boost the economic activities of the town.

  Since Tando Allahyar is an agro-trading regional center and it would also require containers facility. It is recommended to mainly comprise of the container yards and related functional spaces. In addition required residence for the drivers and other staff with small offices, rest areas, washrooms, shops etc.

- **Railway Reserved Area**

  The town has an old Railway Station, which was established during British time. It brought a revolution in the town and increased its importance as an agro-trading hub. The railway station lies in the northern part of the town, on Hyderabad – Mirpur Khas branch railway line. It is linked with the national network of Pakistan Railways through Karachi railway line via Kotri-Hyderabad.

  It is suggested to reserve the area for railway use only, to avoid any sort of encroachments. Consequently, the available vacant land parcels have been marked as Railway Reserved Area, in order to avoid further violation of railway ROW. Further it is recommended to improve the railway service for better cost effective connectivity for the town's economy.

- **Air Connectivity**

  Regarding air connectivity, Tando Allahyar is directly connected to Hyderabad Airport at a distance of 42 kilometers via N-120 Hyderabad – Mirpurkhas Road. Thus, it is suggested that residents of Tando Allahyar Town should utilize Hyderabad Airport, as new airport for Tando Allahyar is not feasible due to nearby airport facility and with projected population.

The following guidelines are for transport zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - All types of parking areas<br>- Designated ROW<br>- Green belts<br>- Footpaths<br>- Traffic management devices | - Drivers and staff accommodation<br>- Support offices, rest areas, washrooms, shops etc.<br>- Street furniture like lights, trash bins, benches etc. |
| **Applicable SBCA Bylaws[23]** | **Prohibited Uses** |
| - No direct access to major roads will be allowed except through service road<br>- No structure or part of a structure may project beyond building line | - Any kind of encroachment |

### 4.4.13 Utilities and Services Zone

The utilities and services provision is also made in the master plan. This land provision is mainly for large scale utilities and services.

The Level II secondary zoning of utilities and services land use will be as follow:

- **Water Supply**
  The main water supply sources is Naseer Canal and existing water supply works is suggested to expand. In continuation towards north, an additional area along Naseer Canal is proposed for water supply works. This additional area has been reserved to extend the water reservoirs as per the town's water demand and related water supply infrastructure. This increase will also cater to water supply filtration plant and other advance purification mechanism.

- **Sewage Treatment Plant**
  The area is designated for STP and its related uses, in southeastern direction accessible from Chamber Road. The site is low in elevation level with respect to nearby main drain, which will helpful to relay mainly on gravity flow. From very first it is not necessary to setup a fully mechanized STP, but it is suggested to start with oxidation ponds then proceed toward advance management of waste water.

- **Landfill Site**

[23] Highway Major Roads, General Standards, as per Sindh Building & Town Planning Regulations, Chapter 21, page no 126.

A landfill site is proposed at outskirts of town area, in south side considering wind direction. This landfill site is directly accessible from Chamber Road. As the whole town will grow according to the master plan it will serve the population for next 20 years or even beyond.

- **Grid Station**

  Grid station in Tando Allahyar Town is existing along Hyderabad Road. Its extension for immediate need is possible to extend in same premises. The extended facility will benefit the residents as per the need of the present consumption of the town. However the grid station extension is proposed for upcoming future load and requirement.

The following guidelines are for utilities and services zone development:

| Permitted Uses | Allied Permissible Uses | Prohibited Uses |
|---|---|---|
| - Land use for Utilities and Services like Water Supply, Filtration, Oxidation Ponds, Sewage Treatment, Landfill Sites, Grid Station etc. | - Related land development and building activities<br>- Accommodation for staff, operators and labors.<br>- Specific parking area. | - Other than permitted and permissible |

### 4.4.14 Urban Forestation Zone

Urban forestation along all bypasses and major roads is proposed to avoid rapidly increasing disorganized private development. Instead planned residential areas as per building control rules and regulations which are proposed on both sides of road after urban forestation reserved areas.

In order to protect New Bypasses and N-120 Hyderabad – Mirpur Khas Road from uncontrolled development, urban forestation of two hundred feet at both sides of the road should be planted. It is advised to restrict development in this area and implement the rules and regulations to keep the town green. In addition to New Bypasses urban forestation of 50 to 100 feet on both side of the major roads and existing bypasses are also proposed depending upon their ROW, to avoid direct / upfront development along roads. All major roads crossings will have initially green roundabouts with enough space for grade separated junctions in the future.

It is recommended to plant locally available species for urban forestation. This region is gifted with a large variety of natural vegetation of grasses, shrubs and trees.

The following guidelines are for urban forestation zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Land use for horticulture, landscaping, plantation, green belt, forestation. | - Related land use and activities, while no land development or buildings.<br>- Temporary accommodation for labor and security persons.<br>- Specific parking area for any accident and unplanned incident. |

### 4.4.15 Agricultural Zone

In order to limit the town development agricultural reserved areas are proposed along New Bypasses and N-120 Hyderabad – Mirpur Khas Road. In this manner not only town spatial growth will be confined but also essence of agriculture activities will remain close to the town. It will also create a healthy environment and less burden will be on spread of infrastructure network. The existing villages or settlements in the periphery of the town will also be benefited and not removed from their place of livelihood. The recommended crops for production are; sugarcane, wheat, rapeseed and mustard, cotton, jowar, maize, gram, and barley. Due to its soil and topography, Tando Allahyar is an ideal place for Mango Production.

The following guidelines are for agriculture zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Land use for proposed agricultural and its necessities. | - Related land activities with respect to its rules and regulations.<br>- Accommodation for farmers and labor in associations with MC. |

### 4.4.16 Water Bodies

In Tando Allahyar, the main water source is Naseer Canal and its branches. So it is suggested that Naseer Canal's beautification is highly recommended. It includes:

- Protection of its right of way and removal of encroachments
- Control on incompatible development in its surrounding
- Restriction on disposal of waste water
- Restriction on dumping of solid waste
- Provision of roads on both sides of its course
- Native plantation on both sides of its course

The following guidelines are for Water Bodies zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Land use for water bodies like rivers, tributaries, canals, water channels, irrigation network, ponds, lakes, water courses. | - Related land use and activities, while no land development or buildings.<br>- Temporary accommodation for labor and security persons. |

### 4.4.17 **Vacant Zone**

The objective of providing vacant area is to cater the emergency need at time of any disaster. With this respect areas outside the town limit will kept reserved for emergency need, which could be utilized for portable homes, mobile health care facilities, camping for vulnerable of calamities, temporary storage of bulk material etc. The proposed vacant area is at outskirts of Tando Allahyar Town but being on the peripheral area, would not disturb the town activities in general and it is directly accessible from Nasarpur Road and Northern Bypass.

However, the control on vacant land is extremely important, leap-frog development create pressure to utilize for other uses. Thus, there is a need to make sure that no development would take place in these types of reserved areas.

The following guidelines are for vacant zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Land use for proposed emergency and imminent necessities | - Related land development and building activities.<br>- Temporary accommodation for operation and maintenance staff in associations with MC. |

# 5. HOUSING

## 5.1 Existing Situation

Adequate housing is fundamental to improve living standards among poor and low-income households because it is one of the major components of the social infrastructure, the lack of which begins to offset the positive effects of economic development. Without adequate shelter, families are condemned to poverty, poor health, low educational attainment, vulnerable to natural disasters and the chaos of civil conflict. Lack of safe, affordable, decent housing is a major contributor to poverty and affects all aspects of a family and community's life. In Tando Allahyar general housing condition of the surveyed houses was satisfactory. Sample survey of the town reveals that approx. 35% of the houses were constructed in between 6 to 10 years.48% of the houses were below 120 sq. yards with an average of 7 members in each household.

As per 2017 population census results, Tando Allahyar municipal area had household size of 7 persons and a total housing units of 29,991. Most of them were categorized as pacca houses which include Pacca (Brick construction) and RCC houses. The sample survey identified that 11% houses are Katcha, 51% are Pacca, RCC construction 16% and semi pacca 22%.

| ADMINISTRATION UNIT | Past Census 1998 | | | | Current Census 2017 | | | |
|---|---|---|---|---|---|---|---|---|
| | Population | AGR | No. of HH | HH Size | Population | AGR | No. of HH | HH Size |
| Tando Allahyar **MC** | 85,812 | 3.02% | 12,259 | 7 | 156,562 | 3.22% | 29,911 | 5.2 |
| Tando Allahyar **District** | 493,526 | 2.81% | 211,354 | 5.8 | 836,887 | 2.82% | 165,503 | 5.1 |

**Katchi Abadis in Tando Allahyar MC[24]**

According to data provided by Sindh Kacthi Abadis Authority (SKAA), there are 21 Katchi Abadi in Tando Allahyar DHQ Town. These are spread over 43 acres covering 1,110 housing units with 4,141 population approx. Thus, it is estimated that 3% population of Tando Allahyar MC resides in katchi abadis. Out of these, there were two notified namely Madina Colony Ward B and Unar Para Ward A, in 1988 and 1998 respectively. The list of Katchi Abadis present in Tando Allahyar MC is as follows:

[24] Data provided by Sindh Kacthi Abadis Authority, December 2019

| List of Katchi Abadis in Tando Allahyar City[25] | | | | |
|---|---|---|---|---|
| **S. No.** | **Name of Katchi Abadi** | **Total Area (acres)** | **No. of Housing Units** | **Estimated Population** |
| 1. | Bhangi Colony | 1.13 | 45 | 200 |
| 2. | Choori Para | 1.18 | 41 | 60 |
| 3. | Eid Gah Road Area | 1.74 | 42 | 180 |
| 4. | Hajjam Para | 1.40 | 46 | 120 |
| 5. | Jhugi Colony | 1.87 | 44 | 431 |
| 6. | Khatri Para | 1.41 | 45 | 120 |
| 7. | Kumbhar Para | 1.50 | 40 | 60 |
| 8. | Kumbhar Para | 1.80 | 40 | 200 |
| 9. | Madina Colony Ward-B (notified) | 2.04 | 95 | 390 |
| 10. | Market Area | 1.38 | 40 | 180 |
| 11. | Memon Para | 1.03 | 47 | 42 |
| 12. | Moj Darya Para | 1.68 | 41 | 180 |
| 13. | Old Tando Adam Goth | 2.00 | 50 | 300 |
| 14. | Pak Colony | 5.07 | 40 | 240 |
| 15. | Patoli Para | 2.00 | 42 | 12 |
| 16. | Sheedi Para | 1.54 | 45 | 90 |
| 17. | Soomra & Menghwar Para | 1.20 | 80 | 125 |
| 18. | Sweeper (Bhangi) Colony | 1.13 | 45 | 200 |
| 19. | Unar Para Part-I | 4.85 | 100 | 500 |
| 20. | Unar Para Ward-A (notified) | 2.17 | 100 | 500 |
| 21. | Zahan Shah Para | 1.12 | 42 | 11 |
| **Total** | | **42.6** | **1,110** | **4,141** |

## 5.2 Issues

- The households below poverty line have remained neglected, in all housing policies.
- Poor land administration with inadequate legal and regulatory systems.
- Housing and associated infrastructure is in dilapidated condition requiring improvement / replacement
- Unchecked growth of squatter settlements: Katchi Abadis encroachment on state and vacant land is a direct outcome of the housing shortage.
- Legal documentation procedures for property transactions is very tough and costly.
- Real estate investors and builders is another reason for boosting land prices.

[25] Ibid

## 5.3 SWOT Analysis

| HOUSING | | | |
|---|---|---|---|
| **Strengths** | **Weakness** | **Opportunity** | **Threats** |
| 1. 83% of the population lives in self-owned houses<br>2. Almost half of the urban area population has pacca houses.<br>3. The trend of new housing schemes construction by private development is increasing.<br>4. Most of the formal population is served by electric, gas and water supply.<br>5. The trend of rental housing is low just 14% of the population lives in rental housing | 1. 11% of the urban town population lives in katcha houses where quality of life is low and utility services are limited.<br>2. Land shortage in core town.<br>3. High prices of houses in private sector.<br>4. The informal housing sector lacks provision of utility services like gas supply, clean water and drainage facilities. | 1. Demand for new planned housing schemes.<br>2. Demand for low income housing.<br>3. Demand for public housing projects.<br>4. More housing for local people of town.<br>5. Opportunity for local micro financing for housing.<br>6. Installation of basic utility services through new projects. | 1. High housing prices and rents.<br>2. Development of informal housing in empty/vacant spaces available within town.<br>3. Increase in urban sprawl.<br>4. Inflation of land.<br>5. Shortage of open spaces in urban areas.<br>6. Formation of urban slums.<br>7. Relocation of higher income groups to other towns. |

## 5.4 Need Assessment

As per the 2017 census population results, Tando Allahyar municipal area had a household size of 5.2 persons and total housing stock of 29,991 households, Most of them were categorized as Pacca houses, which include Pacca (Brick construction) and RCC houses.

**Table 5-1: Housing Backlog**

| S. No. | Housing | Population | Household Size | No. of HH |
|---|---|---|---|---|
| **1.** | **Present 2017** | 156,562 | 5.2 | 29,991 |
| **2.** | **Future 2037** | 295,096 | 5.2 | 56,749 |
| **3.** | **Additional (2017-2037)** | 138,534 | 5.2 | 26,641 |
| *Source: Consultants Estimate 2017 Census Report of Tando Allahyar* | | | | |

Based on the projected population for the year 2037, the increase in population is 138,534 with an estimated additional housing requirement of 26,641.

In urban areas, the problem manifests as unstoppable growth of squatter settlements known as katchi-abadis and encroachment of state and private land. It is estimated that 50% of the urban population now lives in katchi abadis and informal settlements[26].

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## 5.5 Policy Guidelines

Housing sector is divided in various sub sectors. Policy guidelines for all sub sectors are given below:

### 5.5.1 Policy Measures for Land[27]

- Priority Identification of Land for Housing
  The land availability shall be enlarged through various innovative measures like land banking on continuous basis to cater for at least 5 to 10 years development plan needs.
- Land Acquisition
  The procedural and legal bottlenecks in the acquisitions process shall be removed and land acquisition laws shall be suitably amended to make provision for unified, transparent and market value oriented systems and procedures which would also minimize litigation.
- Land Information System
  Development of a comprehensive land information system using modern technology to record correct and up to date information regarding inventory and land classification, settlement patterns, land values and land availability on all land in urban and rural areas, shall be made a mandatory requirement at all levels of governance.

### 5.5.2 Policy Measures for Housing Finance [28]

- Financial Institutions shall be encouraged to give mortgage loans for housing purposes at market rates.
- Housing finance institutions shall be encouraged to promote savings and provide micro loans for low income group through community organization, NGOs and CBOs.
- Subsidized loaning facilities shall be extended for rural housing construction and improvements through micro-financing system and institutions like Khushhali Bank, Zakat funds, etc.
- Tenancy Laws shall be reviewed and rationalized to promote housing through investment and to protect the interest of the lending institutions.

### 5.5.3 Policy Measures for Katchi Abadis, Squatter Settlements & Slums[29]

[26] http://www.sindh.gov.pk/dpt/phc/policy.html
[27] National Housing Policy 2001
[28] Ibid
[29] Ibid

- The process of regularization and up-gradation of the pre-1985 Katchi Abadis shall continue as per current policy. However, Katchi Abadis, which are hazardous by virtue of being close to railways tracks or located under high tension power lines, or are on or close to the riverbeds, or on lands needed for operational /security purposes, need to be relocated at appropriate places by LOAs.
- Formation of new Katchi Abadis shall not be allowed and shall be discouraged by exercising strict development controls in all urban areas.
- In all government housing schemes, adequate plots for low income people shall be reserved to offer them at affordable prices. In addition private developers will also be encouraged to develop low cost housing schemes.
- City and District Government shall prepare housing plans to cater for the current and future housing needs for low income groups on incremental basis at affordable, cost. Katchi Abadis resettlement plans and up-gradation plans shall be an integral part of these housing plans.
- Building regulations, building by laws, and planning standards shall be revised to permit incremental development and lowering of planning standards to make it cost effective for low income groups.

## 5.6 Strategic Development Plan

The aim of this Strategic development Plan is to facilitate all for the provision of housing, in this regard following strategies need to be focused:

- Incremental housing schemes on the lines of Orangi, Qasba, Khuda Ki Basti etc. in Karachi should be initiated based on lessons of experience.
- Development of indigenous and cost effective approaches particularly for low income group and mass production.
- Regularize notified Katchi Abadis complemented by policies to restrain the emergence of new Katchi Abadis.

**i. Long Term Plan:**

- Support research and development programs for economic building material and modern construction technologies.
- Land bank to be formed to facilitate availability of suitable, affordable, safe and secure land parcels within the town for the development of housing schemes.
- Concepts of small towns should be worked out to minimize the housing requirement in secondary cities.
- A mechanism of new approved housing schemes should be established in which MC should be bound to provide piped water, sewerage, electricity and gas connection to approved scheme with coordination with other relevant authorities.
- An affordable housing program for low income group in different phases up to 2037, through one window operation (including technical guidance, easy loan provisions, legal procedures)
- Formulation of Green Building Byelaws for future housing to address water conservation, low energy consumption, waste recycling etc.

- Agricultural land should be protected from the on sought of housing scheme by developer further the multi housing should be engaged to conserve the Rich farm land.

**ii. Short Term Plan:**

- Increase in proportion of small size plots could be made for low income groups in all new housing schemes.
- Promote the development of public housing scheme for low income groups
- Low-income Housing Funds would be established to provide sufficient and affordable credit for housing to meet the needs of shelter less poor. Example is Grameen Bank which is a microfinance organization and community development bank founded in Bangladesh. It makes small loans to the impoverished without requiring collateral
- Improvement of old housing in core urban area including face lifting of existing town fabric.
- Shifting / removal of illegal settlements from hazardous zones in addition to up gradation / regularization of notified Katchi Abadis.
- Improvement / provision of basic utilities and community facilities for the residential areas.

## 5.7 Priority Projects

➢ **Development of Housing Site with allied services for Low Income People and Land Acquisition**

➢ **Project Scope & Justification**

Most of the population of Municipal is living in slums areas and depreciated houses. A significant households in Tando Allahyar have low income. These households are unable to acquire their own houses so resolve their housing problem resulting rising the number of slums areas and encroachment. The living condition in such areas are poor they face so many problems and mostly don't have utility services. To relieve the problems occur by this situation, the public sector in Tando Allahyar should launch as part of the urban strategy, an affordable housing program for low income households.

The living condition in such areas is not very good, they face so many problems with limited facilities of utilities & infrastructure. According to Socio Economic Survey results, the status of ownership of houses is like 83% family owned, 3% rent free/Govt. employers and 14% on rent. Therefore on a priority basis, the provision of a developed site for residential purpose is proposed to accommodate at least 4,200 families in short term plan.

| Description | Results |
|---|---|
| Present Population census 2017 | 156,562 |
| 14 % Population of Tando Allahyar Living in rental houses with no house ownership | 21,919 |
| Households required @ 5.2 | 4,200 |

Approx. 4,200 number of 120 sq.yd plots will be proposed. Tentative ten million cost per acres as development cost is estimated with all allied facilities and infrastructure.

The purpose of this project is to:

- Provide affordable shelters to the poor people
- Through this process alternate resettlement of the congested part of the towns may be possible
- This process improve the living standard of the town

The development of housing site / scheme will be as per the minimum standards to reduce the cost of the project

- **Project Benefits**

  Part of the capital expenditure is expected to be recovered through Sale of commercial plots and buildings. The project is expected to generate direct income. The project will directly give benefit to the low income people. Improve in living conditions are associated with the improvement of social and long term economic benefit.

- **Implementing Authority -** Government of Sindh, Tando Allahyar Municipal Committee, and HESCO etc.

- **Estimated Cost: 2,100.00 Million Approx. (Short Term)**

| Project Name | Long / Short Term | Proposed Area (acre) & Lengths (m) | Preliminary Cost (million/- PKR) | Justification |
|---|---|---|---|---|
| Land Development for low income housing scheme | Short Term | 210 acre | 2,100.00 | This will provide more than 4,200 developed plots up to 120 sq.yds for low income group with all amenities and services. For the development of proposed site 10 million per acre development cost is assumed for all internal allied facilities and infrastructure. |

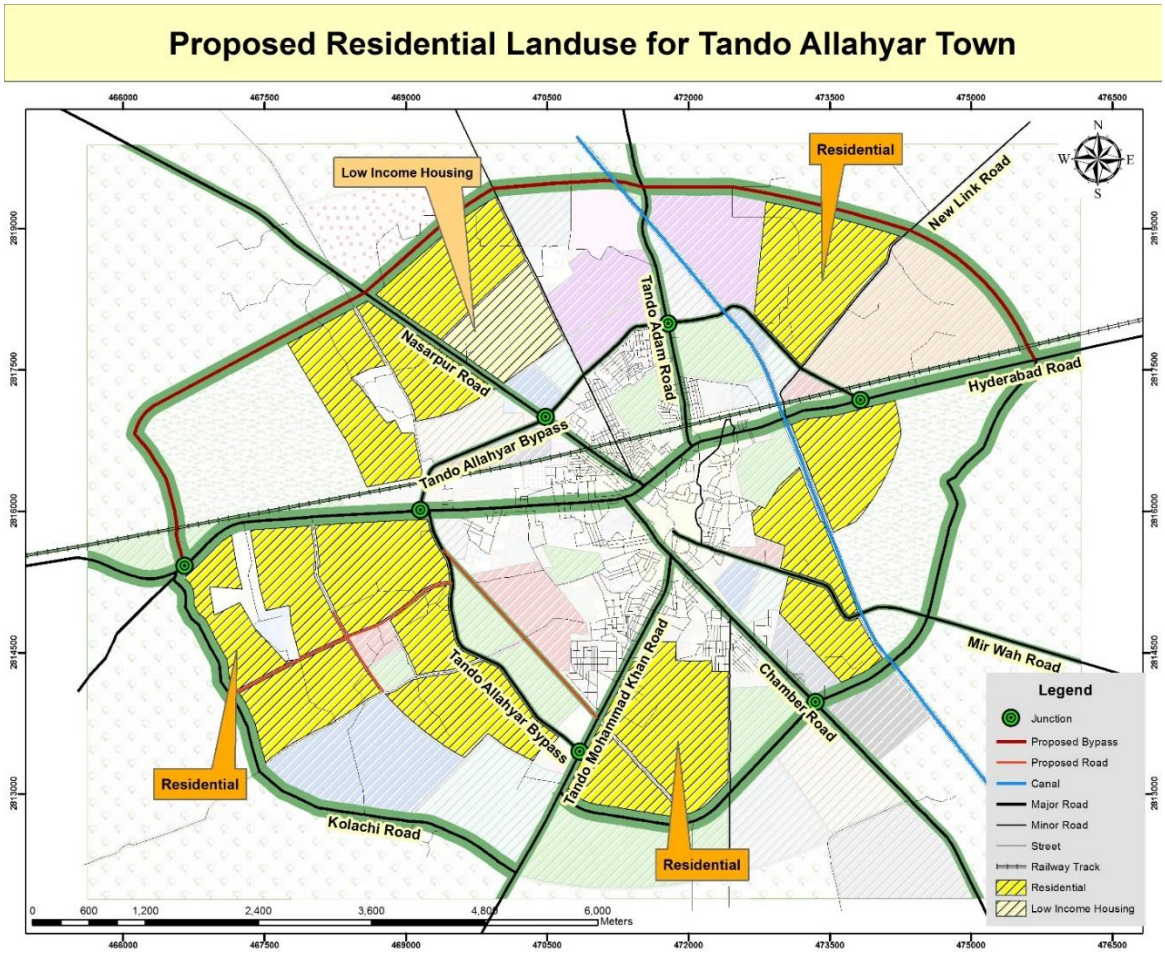



***Figure 5-1 : Future Housing Proposal of Tando Allahyar Town Map***

# 6. SOCIAL AMENITIES

## 6.1 Education

### 6.1.1 Existing Situation

In District Tando Allahyar there are 680 primary Schools out of which 87 are boys and 78 are girls with enrolment of 52,009 Students, boys 34,859 and girls 17,150. These Schools are being served by 1,246 Teachers male 989 and female 257. The Teacher Student Ratio is 1:42.




**Figure 6-1: Govt. Provincialized High School Tando Allahyar**

There are 40 middle Schools out of which 34 are boys and 8 are girls, with enrolment of 3,545 Students, boys 2,157 and girls 1,388. These Students are being taught by 181 Teachers. The Teacher Student ratio is 1:20.

There are 3 elementary Schools in district Tando Allahyar, with a total enrolment of 684 (boys 472 and girls 212) having a Teaching staff of 10 teachers. The teacher student ratio is 1:68.



**Figure 6-2: Govt. Main Sindhi Elementary School, Tando Allahyar**

The number of Secondary Schools in Tando Allahyar is 32 in number out of which 9 are for boys and 6 for girls students, with a total enrolment of 15,644 (boys 10,672 and girls 4,972), taught by 555 teachers (male 401 and female 154)**.**

There are 5 Higher Secondary Schools in district Tando Allahyar, with an enrolment of 8,464 (boys 4,115 and girls 4,349) having Teaching Staff of about 169 out of which 82 are male and 87 are female.

**I. Condition of Educational Institutions**

There is an overall poor condition of schools and college due to lack of repair and maintenance of buildings lack of playgrounds, libraries, electricity, labs, toilets, etc. To bring universal education ratio there is need to double the efforts by engaging teachers, increasing capacity of schools, operationalization of existing closed school and opening of new schools.

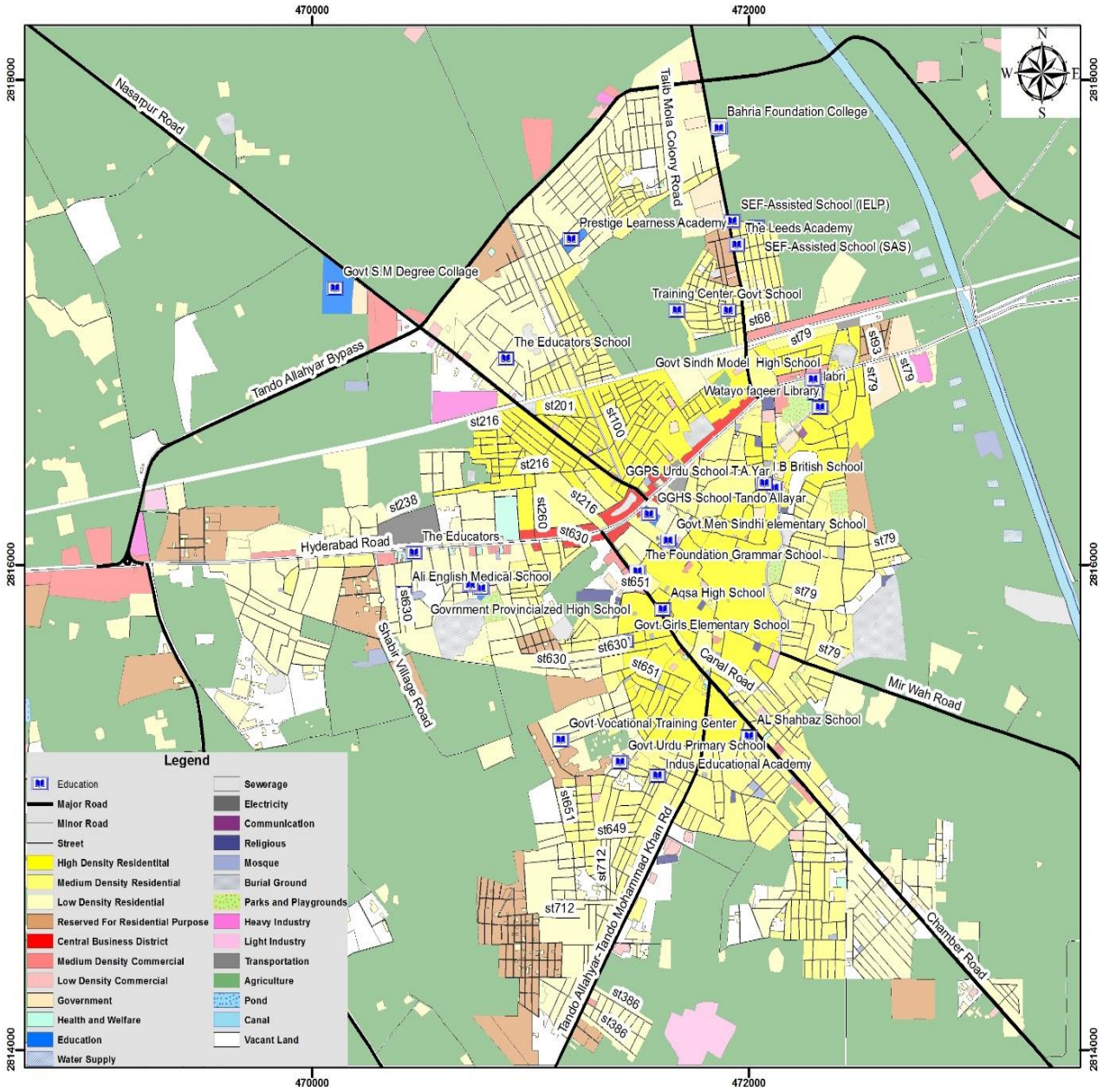



**Figure 6-3: Educational Institutions in Tando Allahyar**

### II. Education Sector at Taluka Level[30]

- Primary, Middle & Elementary Schools

  All structures of primary schools in Tando Allahyar are old and need to be repair. Most of primary schools do not have basic facilities in satisfactory condition, like drinking water, electricity and toilets.

**Table 6-1: Present Education Institutions and Enrolment Record**
**Primary and Secondary Schools**

| S. No. | Type | Nos. | Class rooms | Enroll | Teachers | Students per classroom | Teacher Student Ratio |
|---|---|---|---|---|---|---|---|
| **1** | Boys Primary Schools | 35 | 90 | 3,471 | 84 | 39 | 41 |
| **2** | Girls Primary Schools | 30 | 87 | 2,668 | 128 | 31 | 21 |
| **3** | Primary Schools (Co-education) | 141 | 394 | 15,344 | 398 | 39 | 39 |
| **4** | Middle School (Boys) | 1 | 6 | 40 | 3 | 7 | 13 |
| **5** | Middle School (Girls) | 3 | 7 | 135 | 11 | 22 | 14 |
| **6** | Middle School (Co-Education) | 8 | 56 | 1,253 | 86 | 22 | 15 |
| **Total / Average** | | **218** | **640** | **22,911** | **710** | | |

**Source: Reform Support Unit RSU Education & Literacy Department. Government Of Sindh 2017**

### III. High Schools[31]

The present enrolment of boys at the Secondary school level in Tando Allahyar is 3,494. There are 6 boys' Secondary schools. The total number of class rooms is 96. The average number of students in class rooms is 36. Currently, 141 teachers are performing their jobs. The teacher-student ratio is 1:25.

[30] *RSU (Reform Support Unit RSU Education & Literacy Department. Government Of Sindh 2017)*

[31] *RSU (Reform Support Unit RSU Education & Literacy Department. Government Of Sindh 2017)*

### IV. Higher Education

Most of the Secondary Schools have sufficient basic facilities in satisfactory condition, like drinking water, electricity and toilets. Secondary data provided by the district education department below is the college.

**Table 6-2: Secondary and High Secondary Schools**

| S. No | Type | Nos. | Class rooms | Enroll | Teachers | Students per classroom | Teacher Student Ratio |
|---|---|---|---|---|---|---|---|
| 1 | **Secondary Schools (Boys)** | **6** | **96** | **3,494** | **141** | **36** | **25** |
| 2 | **Secondary Schools (Girls)** | **3** | **40** | **1,310** | **66** | **33** | **20** |
| 3 | **Secondary School (Co-Education)** | **4** | **55** | **2,835** | **84** | **52** | **34** |
| 4 | **Govt. High Schools (Coeducation)** | **1** | **63** | **3,088** | **60** | **48** | **51** |
| **Total / Average** | | **14** | **254** | **10,669** | **351** | | |

*Source: Reform Support Unit RSU Education & Literacy Department. Government of Sindh 2017*

### V. Technical Institutions[32]

The present number of technical institutions in district Tando Allahyar is 4. Out of which 3 for males and 1 for females. There is 1 Mono-technic institution with a total enrolment of 195 and a teaching staff of 7. There is 1 commercial institution with the enrolment of 25 and 7 teaching staff. The total number of the vocational institution are 2 (male: 1 and female 1), with the enrolment of 63 (male: 32 and female 31) having teaching staff of 10 (male: 6 and female: 4).

- **District Tando Allahyar**

  Secondary data received from RSU-Sindh Management Information System (SEMIS). The government of Sindh gives an overall situation of Education attainment from primary to higher secondary enrolments in the Tando Allahyar district.

[32] *College Education Statistics-2014-15*

The present number of Boys and Girls students in Schools at Tando Allahyar is 80,346, in 760 different levels of schools. Available number of class rooms for primary, middle and higher secondary are 2,066.

**Table 6-3: Existing Situation in District Tando Allahyar**

| S.No | Present Need Assessment Tando Allahyar District | Results |
|---|---|---|
| 1 | Total Enrolment | 80,346 |
| 2 | Total Number of available Class Rooms | 2,066 |
| 3 | Student Capacity per Class Room | 39 |
| 4 | No. of Teachers | 2161 |
| 5 | Teacher Student Ratio | 37 |

*Source: RSU-Sindh Management Information System (SEMIS)*

As per the present figures provided by Reform Support Unit RSU Education & Literacy Department, the occupancy is 39 students per class room in primary to higher secondary schools, which is higher as per National Reference Manual (NRM) of 30 students per class room. Mostly building structures of various schools in Tando Allahyar are old and need repairs.

**I. Taluka Tando Allahyar**

The present number of Boys and Girls students in Schools at Tando Allahyar is 33,638. Students are studying in 232 schools at different levels. The available number of class rooms for primary, middle and secondary is 894.

**Table 6-4: Existing Situation of Taluka Tando Allahyar**

| S. No | Education Type | Results |
|---|---|---|
| 1 | Enrolment | 33,638 |
| 2 | Class Room | 894 |
| 3 | Student Capacity Per Room | 38 |
| 4 | No of Teachers | 1,061 |
| 5 | Teacher Student Ratio | 32 |

*Source: RSU (Reform Support Unit RSU Education & Literacy Department. Government Of Sindh 2017)*

As per the present figures provided by Reform Support Unit RSU Education & Literacy Department, the occupancy is 38 students per class room in primary to higher secondary schools which, is higher than standard as per National Reference Manual (NRM) standard of 30 students per class room

### 6.1.2 Issues

Following are major issues of education sector which includes:

- Shortage of class rooms as per current enrolment
- Low enrolment level with gender disparity
- Shortage of teachers causing low quality of education
- Lack of provision of basic facilities i.e. washrooms, electricity, drinking water etc.
- Poor condition of schools and colleges due to lack of repair and maintenance of buildings
- In addition to classrooms, the rehabilitation of existing educational buildings with all basic and allied facilities are also required. Lack of allied facilities includes furniture, playground, laboratories, libraries etc.

### 6.1.3 SWOT Analysis

| Education and Literacy | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Urban literacy rate is higher than rural.<br>2. High demand rate for private schooling education system.<br>3. 60% of urban population is literate as per sample survey conducted by consultant. | 1.The trend of losing public institutes and universities.<br>2.Less highly educated personnel's.<br>3.Absence of university | 1. More people will move to urban areas for education.<br>2. More educational institutes are required.<br>3. More PPP is required for educational sector. | 1. Relocation of educated class to other major towns of province.<br>2. Shift of educated professional to other major towns of the country. |

### 6.1.4 Need Assessment

- **District Tando Allahyar (Includes primary to Higher education institutions)**
  - As per NRM (National Reference Manual) and NEP (National Education Policy) standards, recommended students per class room occupancy is 30 students per class room. Total enrolment and the available number of class rooms show that there is a shortage of class rooms.
  - The present need can be fulfilled by providing new class rooms in existing school buildings or providing new school buildings with the provision of playgrounds and other facilities.
  - Therefore, for the short term plan, the Tando Allahyar district needs 612 extra class rooms.

**Table 6-5: Present Assessment in Education Sector of Tando Allahyar District**

| S. No | Description | Results |
|---|---|---|
| **1.** | Total Enrolment | 80,346 |
| **2.** | Total Number of available Class Rooms | 2,066 |
| **3.** | Students per Class Room @ NRM Standard | 30 |
| **4.** | Student Capacity per Class Room | 39 |
| **5.** | Class Rooms Required for present need | 2,678 |
| **6.** | Additional numbers of Class Rooms | 612 |
| **7.** | No. of Teachers | 2,161 |
| **8.** | Teacher Student Ratio | 37 |
| *Source: RSU (Reform Support Unit RSU Education & Literacy Department. Government Of Sindh 2017)* | | |

- **Taluka Tando Allahyar (Primary to Elementary education institutions)**

  Short term plan, for taluka provision, there is a need for 187 extra classrooms. The repairing of existing buildings with all the basic facilities and training of teaching staff is required.

**Table 6-6: Present Assessment in Education Sector of Tando Allahyar Taluka**

| S. No | Present Need Assessment of Taluka Tando Allahyar | Results |
|---|---|---|
| **In Schools of Tando Allahyar (Primary, Middle and Elementary)** | | |
| **1.** | Total Enrolment | 22,911 |
| **2.** | Total Number of available Class Rooms | 640 |
| **3.** | Students per Class Room @ NRM Standard | 30 |
| **4.** | Student Capacity per Class Room | 36 |
| **5.** | Class Rooms Required for present need | 764 |
| **6.** | Additional numbers of Class Rooms | 124 |
| **7.** | No. of Teachers | 710 |
| **8.** | Teacher Student Ratio | 32 |
| Source: *RSU (Reform Support Unit RSU Education & Literacy Department. Government Of Sindh 2017) and Consultant's Estimates 2017* | | |

- **Taluka Tando Allahyar (Higher education institutions)**

  The available number of class rooms for students is 63. As per the present figures provided by the district education department Tando Allahyar, the occupancy rate in present class rooms is very high 49 students per class room. As per National Reference Manual (NRM), 40 students per class room is the standard for college-level education. Based on the standard occupancy of 40 students per class room, currently, there is a need for 40 additional class rooms in Higher Secondary Schools.

| Table 6-7: Present Need Assessment in Education Sector of Tando Allahyar Taluka (Higher Secondary) | | |
|---|---|---|
| **S. No** | **Present Need Assessment Tando Allahyar Taluka** | **Results** |
| **In Schools of Tando Allahyar ( Secondary and Higher Secondary)** | | |
| **1.** | Total Enrolment | 3,088 |
| **2.** | Total Number of available Class Rooms | 63 |
| **3.** | Students per Class Room @ NRM Standard | 40 |
| **4.** | Student Capacity per Class Room | 49 |
| **5.** | Class Rooms Required for present need | 103 |
| **6.** | Additional numbers of Class Rooms | 40 |
| **7.** | No. of Teachers | 60 |
| **8.** | Teacher Student Ratio | 52 |
| Source: *RSU (Reform Support Unit RSU Education & Literacy Department. Government Of Sindh 2017) and Consultant's Estimates 2017* | | |

## VI. Future Assessment (2037)

- **District Tando Allahyar**

### i. Primary to Higher Secondary

The long term plan target is to achieve 100% enrolment with a 1:1 male-female ratio by 2037; therefore, 7,752 additional classrooms will be required to accommodate the upcoming generation for the next twenty years. This need could be fulfilled either by addition in existing buildings or more new schools and colleges will be needed to be constructed in the future to serve an additional estimated population of 1,456,696 (10 and above).

| Table 6-8: Future Requirement of Classrooms in Tando Allahyar District 2037 | | |
|---|---|---|
| **S. No.** | **Description** | **Results** |
| **Primary to Higher secondary** | | |
| 1 | Expected total enrolment by 2037 @ 100% enrolment | 294,539 |
| 2 | Total classrooms requirement till 2037 | 9,818 |
| 3 | Present Supply (2017) | 2,066 |
| 4 | Additional classrooms requirement till 2037 | 7,752 |
| *Source: Consultants Estimate Based on 1998 and 2017 Census* | | |

- **Taluka Tando Allahyar**

### ii. Primary to Secondary

The long term plan target is to achieve 100% enrolment with a 1:1 male-female ratio in the next twenty years. Therefore, the need will be of 3,136 additional classrooms for school (Primary to Secondary), 192 additional classrooms for High Secondary will be required to accommodate the upcoming generation for the next twenty years. This need could be fulfilled either by addition in existing buildings or more new schools and colleges will need to construct in the future to serve an additional estimated population of 468,176 (10 and above).

| Table 6-9: Future Requirement of Classrooms in Tando Allahyar Taluka 2037 | | |
|---|---|---|
| **S.No.** | **Description** | **Results** |
| **Primary to secondary Schools** | | |
| 1 | Expected total enrolment by 2037 @ 100% enrolment | 119,010 |
| 2 | Total classrooms requirement till 2037 | 3,967 |
| 3 | Present Supply (2017) | 831 |
| 4 | Additional classrooms requirement till 2037 | 3,136 |
| **High Secondary Schools** | | |
| 1 | Expected total enrolment by 2037 @ 100% enrolment | 10,206 |
| 2 | Total classrooms requirement till 2037 | 255 |
| 3 | Present Supply (2017) | 63 |
| 4 | Additional classrooms requirement till 2037 | 192 |
| *Source: Consultants Estimate Based on 1998 and 2017 Census* | | |

### 6.1.5 Policy Guidelines[33]

- Development of Teachers and professional substitutes; Eliminate gender bias in curriculum development;
- Encourage young women and girls through opportunities and facilities for participation in sports; develop women development centers.
- Construct required schools and higher education institutions in all districts. Take stock of operational and staffed schools and eliminate ghost schools.
- Ghost Schools and absentee teacher should be identified and removed.
- Maintenance of existing depilated schools and buildings should be given top priority.

### 6.1.6 Strategic Development Plan

This Strategic Development Plan aims to strengthen existing schools system to bring socio-economic and sustainable development in the region. The focus of this plan is centered chiefly on improving education standard at primary and secondary levels and providing extra curriculum opportunities to address the needs of youth in rural and remote areas. This will increased the literacy ratio, living standard, employment opportunities of the future population.

Based on the above objectives some strategies are discussed below:

**i. Long Term Plan**

- Sustainable construction new schools and colleges with all facilities to cater additional future enrolment.
- Cater to the high demand rate for private schooling education system.

[33] Sindh Vision 2030

- To bring universal education ratio there is need to bauble the efforts by engaging teachers, increasing capacity of schools, operationalization of existing closed school and opening of new schools.

**ii. Short Term Plan**

- Increasing equitable access to quality ECE, primary and secondary education, with the aim of eliminating social exclusion, enhancing transitions, promoting social cohesion and providing greater opportunities for access, participation and learning to marginalized groups, particularly girls.
- Strengthening governance and service delivery by improving the functioning capacity from the school community level up to district and province level.
- Enhancing the equity of resource allocation and improving the fiscal sustainability and effectiveness of educational expenditure, thereby fostering transparency and accountability in the use of public resources.

### 6.1.7 Priority Projects

- **Rehabilitation of Schools and Allied Infrastructure**
  - **Project Justification**

Education Plays Very Important Role to achieve the goals of any urban strategy. Currently, the situation of Primary to Higher Secondary in Tando Allahyar is not in satisfactory condition. Education should be the one of major goal of any urban strategy. Importance must be placed on girls schools because it was badly disregarded. At present, the condition of exisiting schools in DHQ town needs rehabilation and improvement of the infrastructure and Allied basic facilities like water, electricity, toilet, playgrounds etc. (excluded the Core Urban Area of Tando allahyar)*. The List of the schools in this project are given bellow:

| S. No. | Name | Category | Area (Acre |
|---|---|---|---|
| 1 | Govt.(P) Higher School Tando Allahyar | Education | 1.36 |
| 2 | Govt. Girls Elementary School | Education | 0.04 |
| 3 | Training Center | Education | 0.12 |
| 4 | Govt Vocational Training Center | Education | 0.11 |
| 5 | Govt Urdu Primary School | Education | 0.24 |
| 6 | Govt S.M Degree Collage | Education | 6.71 |
| 7 | Govt School | Education | 0.35 |
| **Total** | | | **8.94** |

- **Project Benefits: By the increasing in the litracy ratio the living standard of the population will** improve and increase the employment oppertunities with in the district.

- **Implementing Authority:** Department of Education, Provincial Government and Tando Allahyar Municipal Committee

- **Estimated Cost: 584.00 Million PKR Approx.**

  Establishment of Various capacity Building Training Programs to enhance Teaching / Academic capacities of Teachers.

- **Project Justification:** Teacher's capacity Building Training Programs shall help to enhance Academic capacities. They note a marked improvement in their understanding of learning methodologies, child development, teacher-student relationship and the value of quality academic environment. By the implementation of this project, academic related people will enhance their teaching skills and it also introduce modern methods of teaching.

- **Project Benefits:** By implementation of this project, it will Increase the technical interests of the district and also increase literacy ratio to increase the employment and also boosts the city development.
- **Implementing Authority -** Government of Sindh, STEVTA, Education Department and District Works & Services Department Government of Sindh.

- **Estimated Cost: 20.00** Million PKR Approx.

| Project Name | Short Term | Proposed Area (acre) & Lengths (m) | Preliminary Cost (million/- PKR) | Justification |
|---|---|---|---|---|
| Rehabilitation of Schools & Allied Infrastructure (excluding Core Urban Area with 30% buildup area) | Short Term | 8.94 acre | 584.00 | 2.68 acre = 116,827 sft, at the rate of 5000/- PKR per sft construction cost with all infrastructure cost. (considered 30% as Built up Area) |
| Establishment of Various capacity Building Training Programs to enhance Teaching / Academic capacities. | Short Term | - | 20.00 | Teachers Capacity building programs can also strengthen their teaching skills for better results. |

## Proposed Educatiuonal Landuse for Tando Allahyar Town

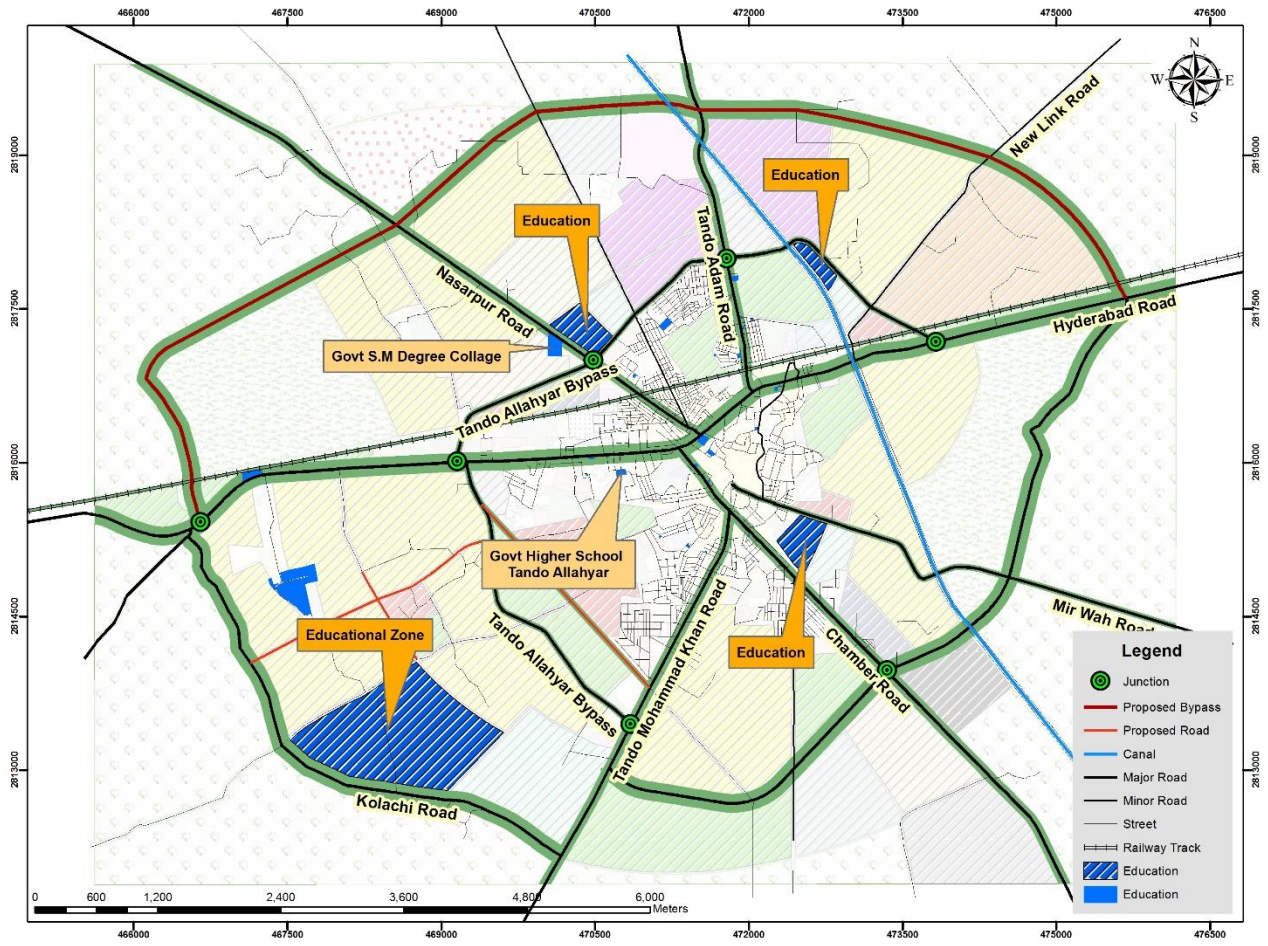



**Figure 6-4 : Future Education Proposal of Tando Allahyar Town**

### 6.1.8 Immediate Action Plan for Core Urban Area

- **Repair and Rehabilitation / Up gradation of Schools**

All schools marked in core urban area should be rehabilitate with the structural stability, building repair work, access to utilities, provision of facilities, replacement of old furniture, presence of teaching and non-teaching staff etc.

The up gradation could be made through addition of new building in same compound or addition of number of floors for new class rooms and allied facilities.

At present only four educational facilities are present in core area of Tando Allahyar. Besides repair and rehabilitation we are only proposing associating facilities with all allied services related to basic utilities, access road and building renovation. To some extent as the population grown beyond the urban core area assumed boundary the short term and long term educational projects are already proposed in priority projects sector wise for future population of town.

| TANDO ALLAHYAR - CORE TOWN AREA REHABILITATION OF EDUCATION FACILITIES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| S. No. | Education Facility Name | Area (acre) | Rehabilitation Required - Area wise or job wise cost (PKR) | | | | | | | |
| | | | Street/ Road/ Parking | Utility Facilities | | | | | Building Repair & Renovation | Security |
| | | | | Power | Water Supply | Sewerage | Gas | PTCL | | |
| 1 | GGHS School Tando Allahyar | 1.77 | 1.77 | 2.04 | 2.66 | 2.66 | 1.77 | 0.44 | 0.89 | 0.44 |
| 2 | Govt. Main Sindhi Elementary School | 0.71 | 0.71 | 0.82 | 1.07 | 1.07 | 0.71 | 0.18 | 0.36 | 0.18 |
| 3 | Library | 0.31 | 0.31 | 0.36 | 0.47 | 0.47 | 0.31 | 0.08 | 0.16 | 0.08 |
| 4 | Govt. Sindh Model High School | 0.11 | 0.11 | 0.13 | 0.17 | 0.17 | 0.11 | 0.03 | 0.06 | 0.03 |
| Total | | 2.90 | 2.90 | 3.34 | 8.70 | | 2.90 | 0.73 | 1.45 | 0.73 |
| Total PKR Rs. Million | | | 20.76 | | | | | | | |

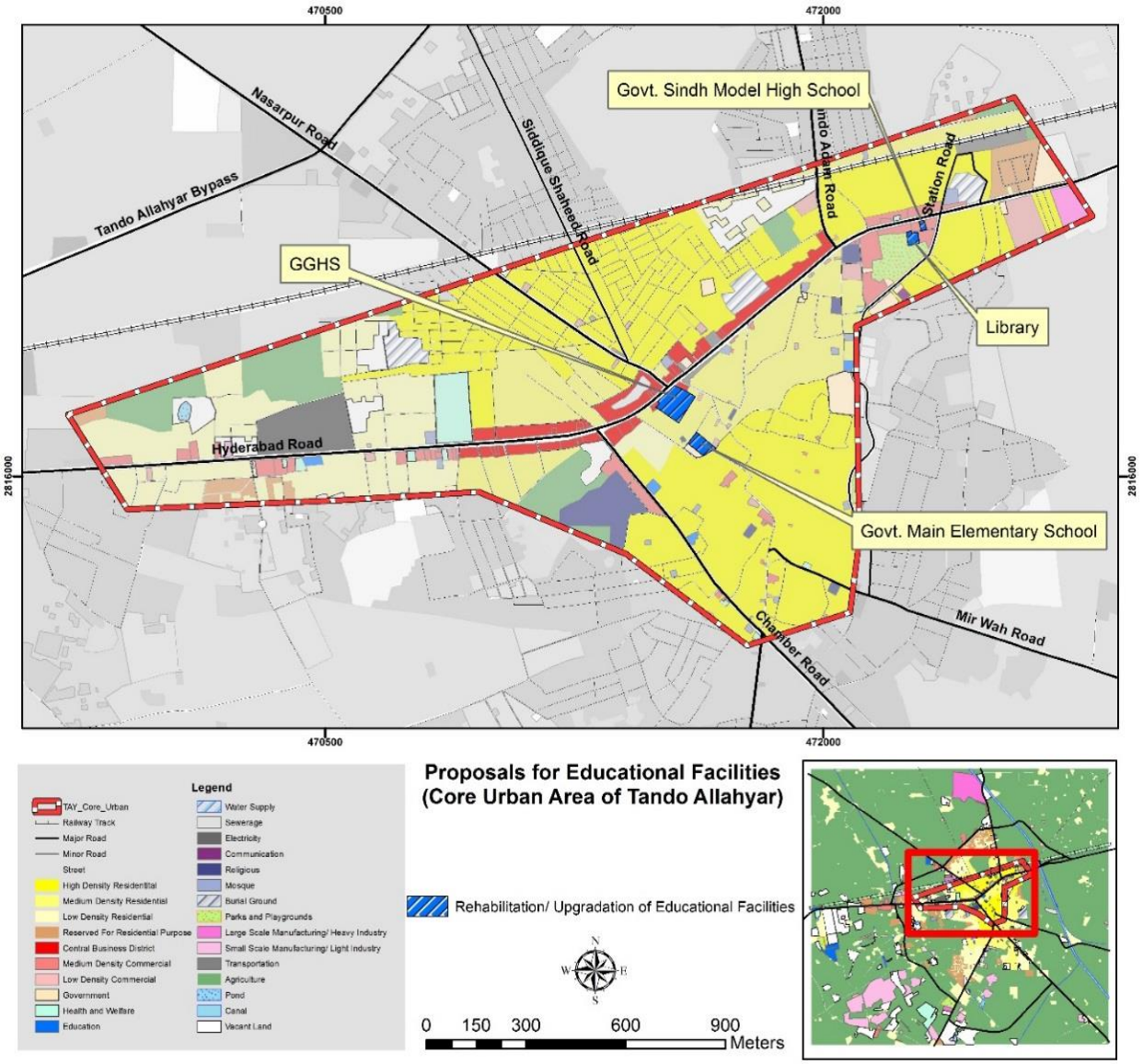



**Figure 6-5: Rehabilitation & Up gradation of & Provision of Missing Educational Facilities for Core Urban Area of Tando Allahyar**

## 6.2 Health

### 6.2.1 Existing Situation

Currently, tertiary level health facilities of Taluka hospital THQ and BHUs are serving the regional population of Tando Allahyar district. There is one civil hospital having 100 beds, 1 Taluka Hospital having 32 beds and 6 private hospitals having 180 numbers of beds to serve the district. The other health facilities spread over the entire district are 3 RHC (Rural Health Center) having 24 beds, 2 TB Clinics, 14 BHUs (Basic Health Unit) having bed strength of 28, 69 dispensaries and 5 M.C.H.C (Mother-Child Health Center).

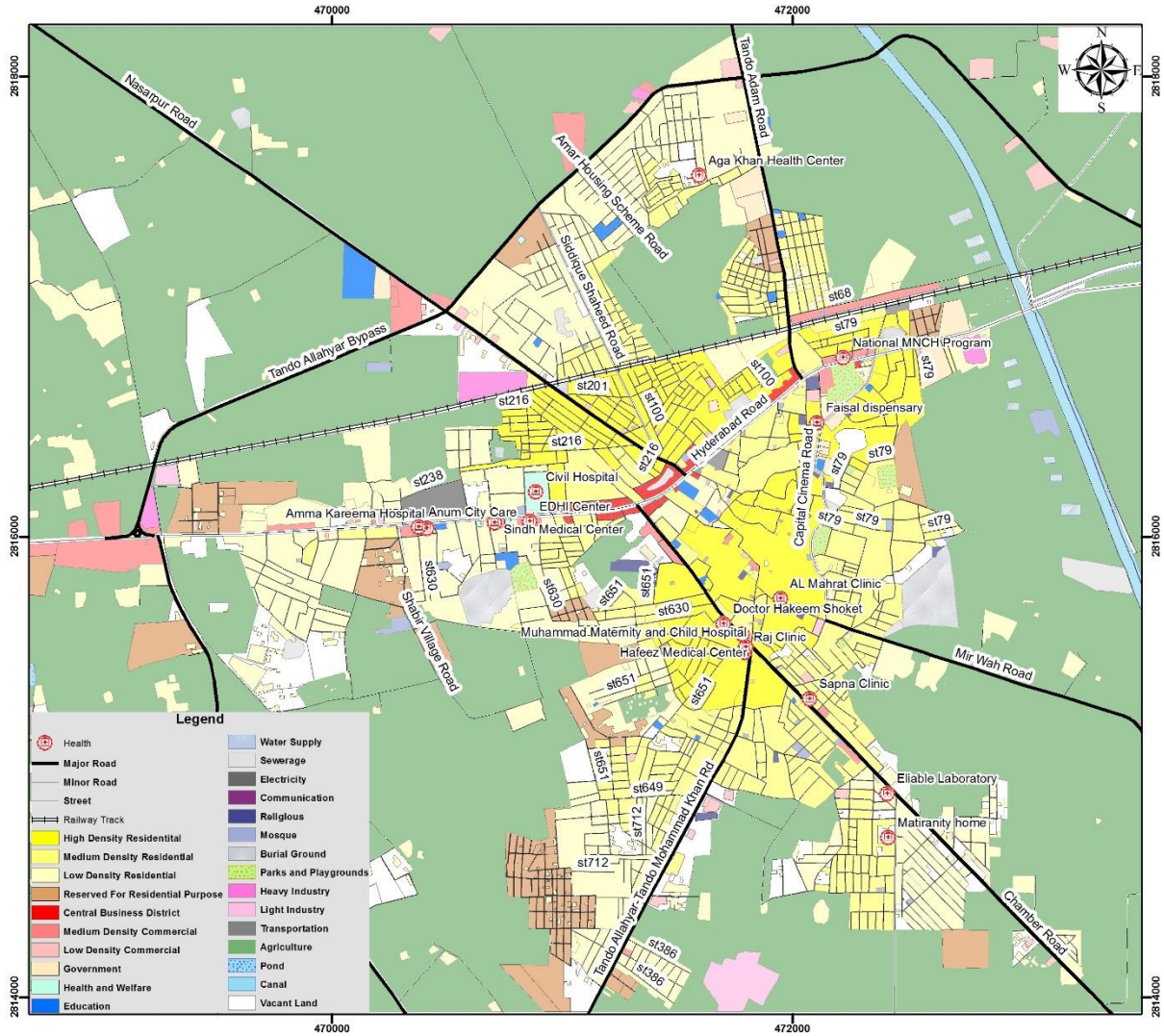



**Figure 6-6: Health Map of Tando Allahyar**

In district Tando Allahyar, there is one civil hospital having 100 bed capacity, 1 THQ having 32 beds, 14 BHUs having 28 beds and 3 RHCs having 24 beds, and 6 private Clinics having 180 beds serving at the Tando Allahyar district.

The total number of dispensaries at district Tando Allahyar is 69 out of which 34 are government and 22 are local bodies. There are 5 M.C.H.C (Mother and Child Health Center) and only 2 T.B clinics in the district.

**Table 6-10: Government and Private Health Facilities with Bed Capacity**

| Type | No. | Beds |
|---|---|---|
| Civil | 1 | 100 |
| THQs | 1 | 32 |
| BHUs | 14 | 28 |
| RHCs | 3 | 24 |
| Private | 6 | 180 |
| **Total** | **25** | **364** |

*Source: Health Profile of Sindh, 2017*

- **Laboratories**
  Currently, THQ/DHQ is facing a lot of problems due to the unavailability of Laboratorial facilities. The shortage of electricity, surgical instruments, and lack of machinery are major issues.

- **Drug Supplies**
  The complete range of items was not available at the majority of the surveyed facilities. The most common reason for their non-availability was undersupply and delayed supply or lack of procurement powers at the district level. The DHQ/THQ Hospital and other health facilities are facing a lot of problems regarding the shortage of medicines supply. Most of the patients have to purchase medicines from the local market. The presence of sub-standard medicines in local markets adds troubles for the patients.

- **Preventive Health Care**
  Provincial Health Department Government of Sindh and Thatta District Administration is quite active in preventive health measures and from time to time has run various campaigns such as:

  - Polio Eradication (Anti-polio campaign)
  - Malaria Control Program
  - Epidemiological Data Collection
  - TB Control Program DOTs
  - Leishmianiasis
  - Leprosy Control Program
  - Aids Awareness Program

### 6.2.2 Issues

- Lack of Health facilities such as wards, labs and OT facilities
- Lack of diagnostic and other Health equipment
- Deficiency of transferring serious cases from rural areas to hospitals
- Large number of Vacant posts of doctors and medical staffs in health institutions of the district.
- Lack of training and housing facilities for LHW and paramedical staff

- Accessibility to health care facilities in remote rural areas is difficult.

### 6.2.3 SWOT Analysis

| Health | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. 47 % of population use Government health facilities. | 1. Limited health facilities in urban area.<br>2. Lack of advance equipment<br>3. Shortage of beds<br>4. Shortage of doctor and para medical staff | 1. More investment is required through PPP in health sector.<br>2. More job opportunities for doctors.<br>3. More job opportunities for the paramedical staff. | 1. Less emergency response to health incidents.<br>2. Difficult to eradicate epidemics diseases. |

### 6.2.4 Need Assessment

- **Present Assessment at district level (Population, Bed Ratio, Doctor Ratio) 2017**

  The NRM (National Reference Manual) recommends 2 bed per thousand as the medium term target. On this basis approximately 1310 beds will be required to be provided gradually. At present 17 to 20% of these beds will be in the private sector. The shortage of doctors and para medical staff, laboratory equipment, diagnostic services and quality of buildings are an evident problem in small towns and will need to be tackled with increase in beds.

**Table 6-11 : Present Health Need at Tando Allahyar District**

| Present Population | Available Beds | Present need | Required Beds | Available Doctors | Present Need | Required Doctors |
|---|---|---|---|---|---|---|
| **8,36,887** | 364 | 1,674 | 1,310 | 164 | 837 | 673 |

Currently there are 164 doctors present at district level in Tando Allahyar (**Health profile of Sindh 2016**).

According to WHO (World Health Organization) standards doctor to population ratio is 1:1000 so taking that as a reference point currently there are 673 doctors required for the present population of district Tando Allahyar.

- **Future Need Assessment at District Level (Population, Bed Ratio, Doctor Ratio) 2037**

  The consultant considered it appropriate to consider the catchment population of the whole district to work out the present need assessment and future (2037) requirements. The NRM (National Reference Manual) recommends 2 bed per thousand as the medium term target. On this basis approximately 2554 beds will be required to be provided gradually until 2037. As already discussed above according to WHO (World Health Organization) standards doctor to population ratio is 1:1000 so taking that as a reference point the future requirement of doctors comes out to be 1295 doctors for the future population of Tando Allahyar.

**Table 6-12 : Future Health Need at Tando Allahyar District**

| Future Population (2037) | Available Beds | Future need | Required Beds | Available Doctors | Future Need | Required Doctors |
|---|---|---|---|---|---|---|
| **1,459,133** | 364 | 2,918 | 2,554 | 164 | 1,459 | 1,295 |

### 6.2.5 Policy Guidelines[34]

- Enhance basic health care by making it more accessible & affordable, efficient, effective and timely.
- Regulate protection from disease and the quality of healthcare across the province. In this context the Health Department will regularly survey and analyze healthcare statistics, particularly on women, children and the elderly
- Enhance and improve existing emergency care facilities and trauma centers, including ambulatory services and paramedic forces.

### 6.2.6 Strategic Development Plan

The aim of this strategic development plan is to improve health indicators and also Ensuring sound access to primary and secondary health facilities for the target population with a medical care system that is effective, efficient and responsive to the needs of all socio-economic groups, in particular, those of low-income communities and women of reproductive age. Some strategies includes:

**i. Long Term Plan**

- Enhancement of Mobile Health Unit for far-flung areas of Tando Allahyar District
- Availability of ambulance network may be created especially for rural areas
- Accommodation facilities for Doctors and Paramedic Staff
- Installation of more Incinerators for medical waste
- Provide a set of incentives for doctors and nurses to fill vacancies

**ii. Short Term Plan**

- Improve access to healthcare facilities as due to long journeys to hospitals many patient die on the way.
- We can further improve the access through an "Edhi' type ambulance network financed by local charity, in connection with local government bodies and healthcare facilities
- Ensure availability of adequate and skilled workforce to fulfill population health needs,
- Expansion of immunization coverage
- Improving functionality of equipment and availability of quality medicines.

[34] Sindh Vision 2030

- Rehabilitation and Extension of Civil Hospital for more specialized wards /sections
- Health awareness programme for the deprived population

### 6.2.7 Priority Projects

- Provision of Missing Facilities at Civil Hospital

➢ **Project Justification**

Health is the fundamental need of the people. Currently health institutes are facing lot of problems due to unavailability of Laboratorial facilities. Shortage of filled doctors, surgical instruments, and lack of machinery are the major issues. Lake of female doctors and female staff. And the condition of BHUs and RHCs are also very poor, there should need to be rehabilation of these insitutes to provide sufficent and high quility health to the people of Tando Allahyar.

➢ **Project Benefits:** This project will provide high quality health facilities and free medicines to the people of District Tando Allahyar.

➢ **Implementing Authority:** Government of Sindh - Health Department

➢ **Estimated Cost: 15**0 Million PKR Approx. (Short Term)

| Project Name | Short Term | Proposed Area (acre) & Lengths (m) | Preliminary Cost (million /- PKR) | Justification |
|---|---|---|---|---|
| Provision of Missing Facilities at Civil Hospital | Short Term | 5.31 acre | 150.00 | Provision of pharmacy, diagnostic and ambulance facilities and installation of incinerators. |

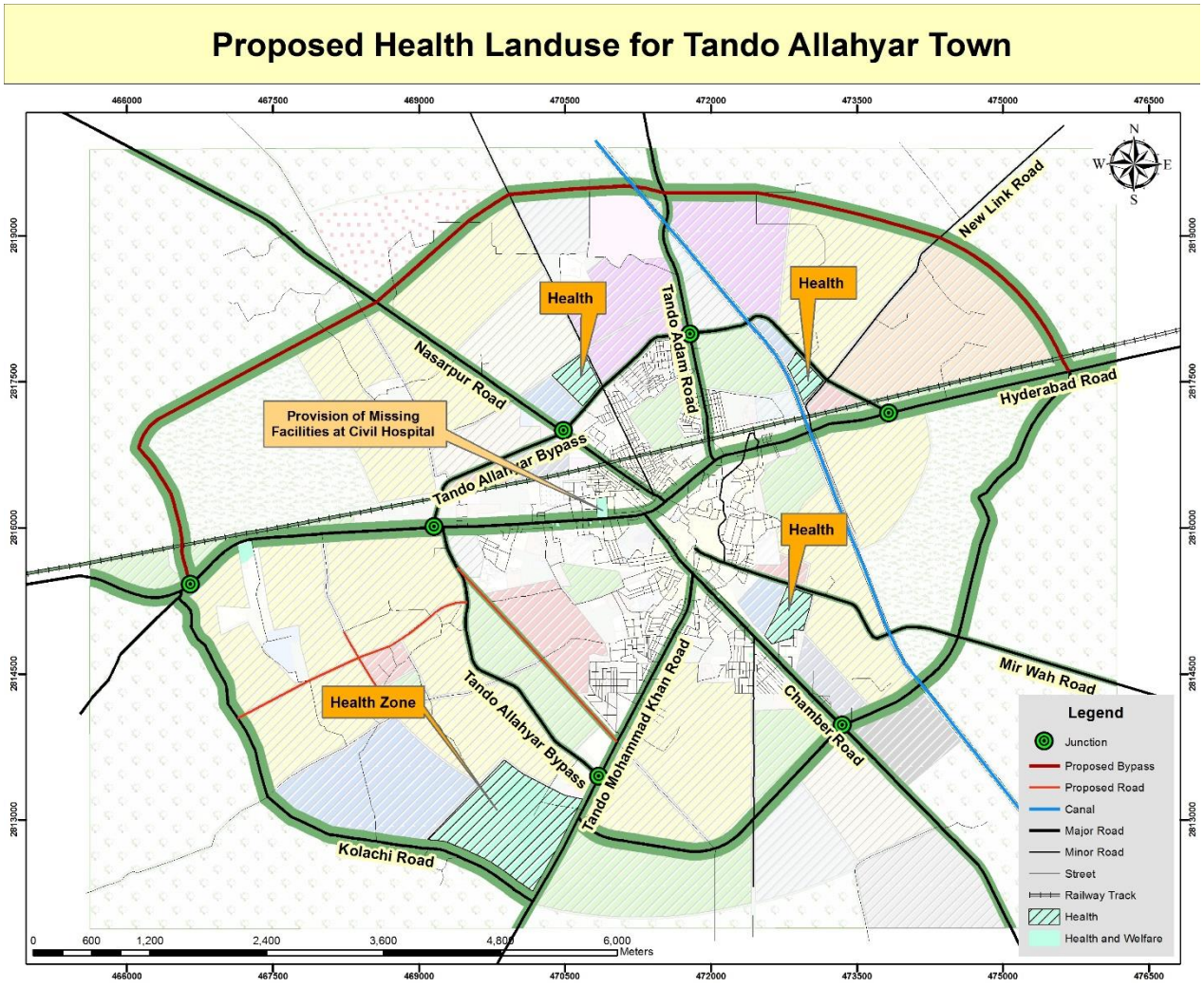



**Figure 6:7: Health Proposals of Tando Allahyar Town**

### 6.2.8 Immediate Action Plan for Core Urban Area

- **Repair and Rehabilitation of DHQ Hospital Tando Allahyar**
  - District headquarter Hospital Tando Allahyar is fully functional with lack of basic facilities like; unavailability of incinerator, waiting area for patients, Basic Laboratorial facilities, shortage of doctors' & para medic staff.
  - Provision of Emergency transport facility (Ambulances) for DHQ Hospital/Civil Hospital
  - Provision of mother & child care wards with allied facilities,
  - Blood bank, additional beds, pharmacy, ambulance service, 24/7 service with specialized doctors and paramedic staff.

| TANDO ALLAHYAR - CORE TOWN AREA REHABILITATION OF CIVIL HOSPITAL | | | | | | |
|---|---|---|---|---|---|---|
| S.No | Area / Locality / Address | Area (acre) | Rehabilitation Required - Area wise or job wise cost (PKR) | | | |
| | | | Street / Road / Parking | Provision of all 4 utilities | Public Facilities | Security |
| 1 | Rehabilitation of Civil Hospital | 5.31 | **5.31** | **3.43** | **6.63** | **1.33** |
| **Total** | | **5.31** | **5.31** | **3.43** | **6.63** | **1.33** |
| **Total PKR Rs. Million** | | **16.70** | | | | |

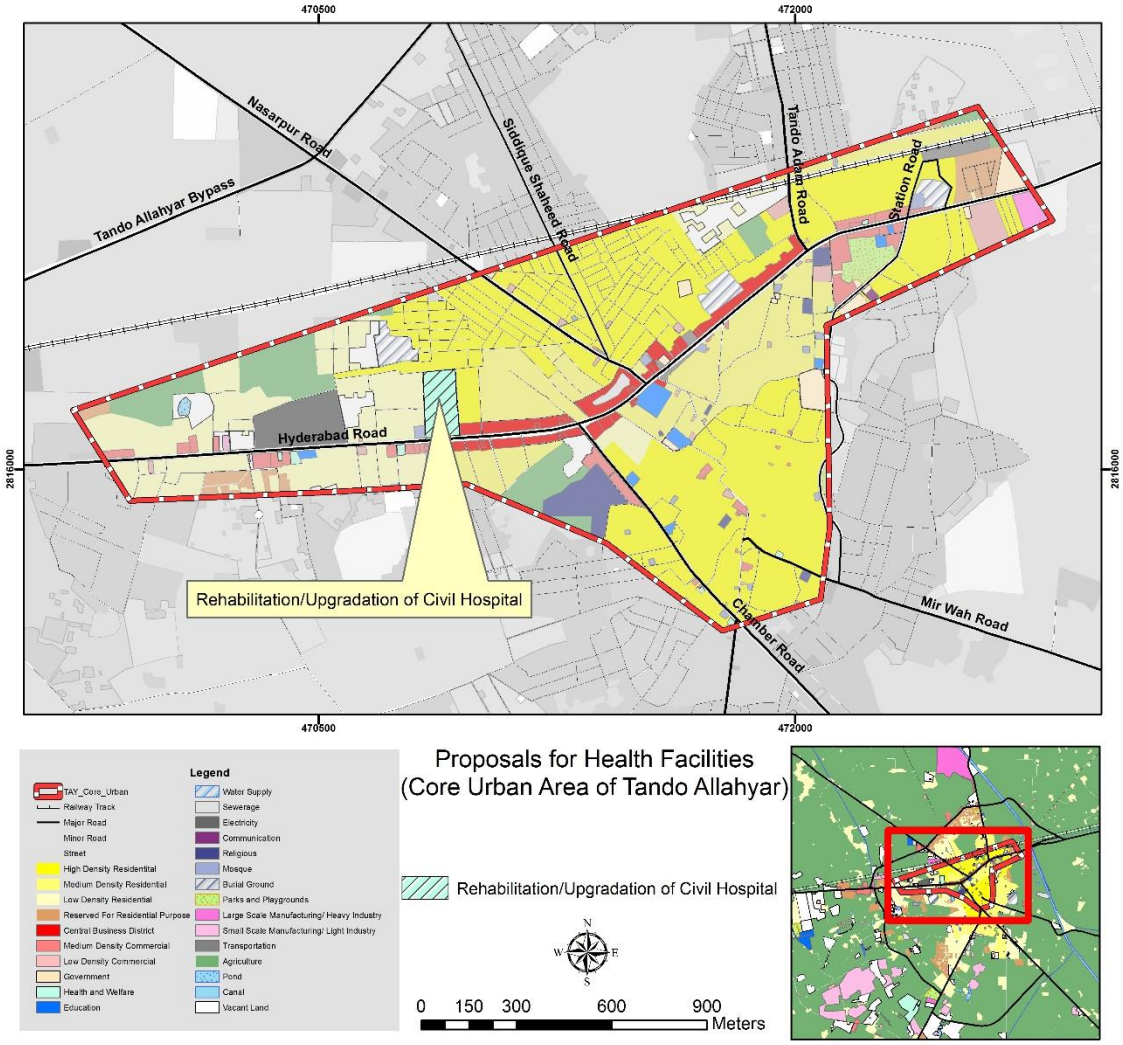



**Figure 6-7: Rehabilitation of DHQ Hospital & Provision of Missing Health Care facilities Core Urban Area of Tando Allahyar**

## 6.3 Recreational/Tourism

### 6.3.1 Existing Situation

Amusement is both goal and subjective in nature. Recreational and entertainment are necessary for the mental, physical and spiritual development of a community .Recreation can be active like organized sports or passive like breathing in a fresh air or standing in a green landscaped park with friends and family

- **Recreational Spaces in Tando Allahyar**
  According to the Cultural department of Tando Allahyar.

- **There are 2 parks in Tando Allahyar,**
  1. Shah Abdul Lateef Bhitai Park
  2. Ghani Park

  There is no separate park for families

- **There is only 1 library in Tando Allahyar**
  - Watayo Faqir Library

  Total of 200 Sq. ft. area is reserved for recreational facilities.
  Cultural and Religious Spaces includes Rama Pir Mandir, Darga Watayo Faqir

### 6.3.2 Tourism

Tando Allahyar and it's environ have many sites of historical significance including mainly Temple of Ramapir, Tando Allahyar Fort and Watayo Faqir's Shrine.

**Temple of Ramapir**: The Ramapir Mandir is a temple of Ramdev Pir in Tando Allahyar with some preliminary reflections related to its history, architecture and symbolism. The temple of Ramapir is one of the third largest pilgrimage sites for the Hindus in Sindh. Every year in Bhadrapada month of Hindu calendar, the three days Mela arranged by Ramapir Sheva Mandir.

**Tando Allahyar Fort:** Talpur constructed a mud and clay fort about three kilometres from the present day Tando Allahyar town centre. The fort was built to provide security for the Mir and the people of the area. It also functioned as a trading post. As the township developed around the fort, it was known as "Allahyar Jo Tando" (Allahyar's Town). The fort is now called "Kacho Qilo". Some walls, decorated at the time of the Mir remain.

Watayo Faqir's Shrine: The shrine of the sindhi oracle and that man was presented thinks his own wisdom Sufi poet Watayo Faqir lies at Kuba Shareef near Rashidabad. Watayo Faqir is a legendary character from Sindh, Pakistan. Many fables based on his wisdom and philosophy that are widely spread, and are told at "Kachehris" (traditional gatherings) and are told to children in Sindhi Folklore. At the age of 75, he is said to have died and buried at Tando Allahyar.

### 6.3.3 Issues

- Shortage of water facility to maintain green spaces, green belts and trees plantation.
- According to Cultural Department, there is only one cricket ground and no Hockey or Football ground available.
- Lack of reserved areas for sports facilities.
- Poor Management for organizing cultural events
- Lack of infrastructure to accommodate visitors into such events.
- Less commercialization from tourism point of view.
- Less heritage preservation.
- Infrastructure is lacking for tourism activities

### 6.3.4 SWOT Analysis

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| **Sports & Recreation** | | | |
| 1. Local environment of town supports green urbanism. | 1. Shortage of water facility to maintain green spaces, green belts and trees plantation.<br>2. Unavailability of sports infrastructure.<br>3. Any proper recreational facility is unavailable.<br>4. People don't have any space available for doing exercise in morning or evening. | 1. Good health of local communities.<br>2. Air pollution reduction.<br>3. Healthy environment.<br>4. Protection of natural habitat. | 1. Give birth to passive recreation.<br>2. Obesity.<br>3. Loss of cultural values. |
| **Culture** | | | |
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. The indigenous cultural activities of various social groups and minorities comprises many events that attract people from its surrounding localities.<br>2. Several annual festivals are celebrated in this district. Among these, Rama Pir Mela (festival) is famous all over the country. | 1. Poor Management for organizing cultural events<br>2. Lack of infrastructure to accommodate visitors into such events.<br>3. Lack of opportunities to commercialize / merchandize cultural goods. | 1. If organized appropriately could generate handsome amount of revenues with other spin-off effects.<br>2. Arrangement of full security and residential places for the visitors can attract people towards the town. | 1. Security Threats<br>2. Demise of cultural values and norms. |

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| 3. Strong potential for producing culturally ornamented products used in daily life. | | | |
| **Tourism** | | | |
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Availability of heritage sites.<br>2. The graveyards of jutts as heritage sites.<br>3. The Shrine of Watayo Faqir is also located here near Rashid Abad.<br>4. The Rama Pir Mandir is a temple of Ramdev Pir in Tando Allahyar. | 1. Less commercialization from tourism point of view.<br>2. Less heritage preservation.<br>3. Infrastructure is lacking. | 1. Tourist attraction.<br>2. Revenue generation through tourism planning.<br>3. Promotion of rich heritage to increase historical importance of town.<br>4. Preservation of touristic places. | 1. Fewer opportunities for active commercial retail.<br>2. Security issues. |

### 6.3.5 Need Assessment

- Shortage of Public Park, playgrounds and recreational facilities.
- Available Recreational facilities are scarce and in dilapidated condition.
- Lack of interest of local government for provision of recreational health facilities to the people of Tando Allahyar MC.
- Local environment of town supports green urbanism.
- The indigenous cultural activities of various social groups and minorities comprises many events that attract people from its surrounding localities.
- Several annual festivals are celebrated in this district. Among these, Rama Pir Mela (festival) is famous all over the country.
- Strong potential for producing culturally ornamented products used in daily life.

### 6.3.6 Policy Guidelines[35]

- Federally-managed lands and waters afford critically needed opportunities for outdoor recreation,
- Managed outdoor recreation can be consistent and compatible with conservation of natural resources including fish and wildlife and preservation of heritage resources,
- Providing enhanced and expanded opportunities for outdoor recreation can be done within the provisions of existing, multiple-use;
- Clean air and clean water and other environmental objectives are vital components of quality outdoor recreation experiences; and providing quality recreation opportunities

[35] NOPRA 2005

- Tando Allahyar needs infrastructure and programmes for sports activities, sport confections, gymnasium and family parks, and children play area and gardens.

### 6.3.7 Strategic Development Plan

The aim of this strategic Development Plan is to provide Recreational Infrastructure of International Standards at District, Protect and conserve the cultural heritage, promote language, art and culture of District and dissemination of information through media. Some of the Strategies are mentioned below:

**Canal Beautification:**

For the beautification of canal (Naseer Branch canal), footpaths and walk ways should be constructed and benches should be fixed on the banks of canals to turn them into recreation spots for the locals and to this effect design should be prepared in collaboration with the irrigation department.

Similarly, food courts will be set up in various places along the canal bank, while spots should be identified for the purpose. Green belt should also be provided for the purpose of facilitating pedestrian movement. Moreover embankments should be reinforced.

For the beautification of canal passing through the city wondrous pathways and vistas can be created along the bank of the canal .Providing Soothing distant tourism opportunity to capture the beauty but not destroy it through increased impact on ecosystem, this can be done by creating a buffer area

**i. Long Term Action Plan**

- Protection of historical places and cultural heritage
- Cultural events should be organized appropriately, so they could generate handsome amount of revenues with other spin-off effects.
- Youth development programme for sports and recreation
- Promote tourism through provision of support facilities
- Measures should be taken for Air pollution reduction.
- Proposal of new graveyard in south along Chamber road.
- Establishment of new open spaces as well as establishment of indoor and outdoor game facilities.

**ii. Short Term Plan**

- Existing open spaces in core urban area should be restored and maintained. New open spaces should be identified and created.
- Development and preservation of cultural heritage
- Cater the problem of Shortage of water facility to maintain green spaces, green belts and trees plantation.
- Availability of sports infrastructure.
- Provision of infrastructure to accommodate visitors into cultural events.

- Promoting opportunities to commercialize / merchandize cultural goods.
- Establishment of synthetic grounds, playing turf (for hockey, football) and indoor gym facility.

### 6.3.8 Priority Projects

Construction / Rehabilitation of Recreational Facilities at Tando Allahyar

- **Project Justification**
  Tando Allahyar town is significantly deficit in Recreational facilities, there are only two parks i.e. Shah Abdul Latif Bhitai Park and Ghani Park but there is no separate park for families. There should be a Family park where people can enjoy with their families.
- **Project Benefits:** It will boost the local economic potential with significant Benefits from local to national level. It will create unique city landscape and generate number of employment opportunities.
- **Implementing Authority:** Sindh Government, Local Government and private investors
- **Estimated Cost: 214.24 Million PKR Approx.**

| Project Name | Short Term | Proposed Area (acre) & Lengths (m) | Preliminary Cost (million/-) PKR | Justification |
|---|---|---|---|---|
| Construction of Multipurpose Sports Grounds / Stadium | Short Term | 6 acre | 214.24 | **A.** Spectator area 20,000 sft. Repair & Rehab; @ the rate of 2,000/ sft.<br>-Total 40.00 Million for the Construction of Spectator area.<br>**B.** Playground Area 4.0 Acres (174,240 sft, @ the rate of playground @ rate of 1000/ sft.<br>-Total 174.24 Million<br><br>**Total (A+B) = 214.24 Millions** |

## Proposed Recreational Landuse for Tando Allahyar Town

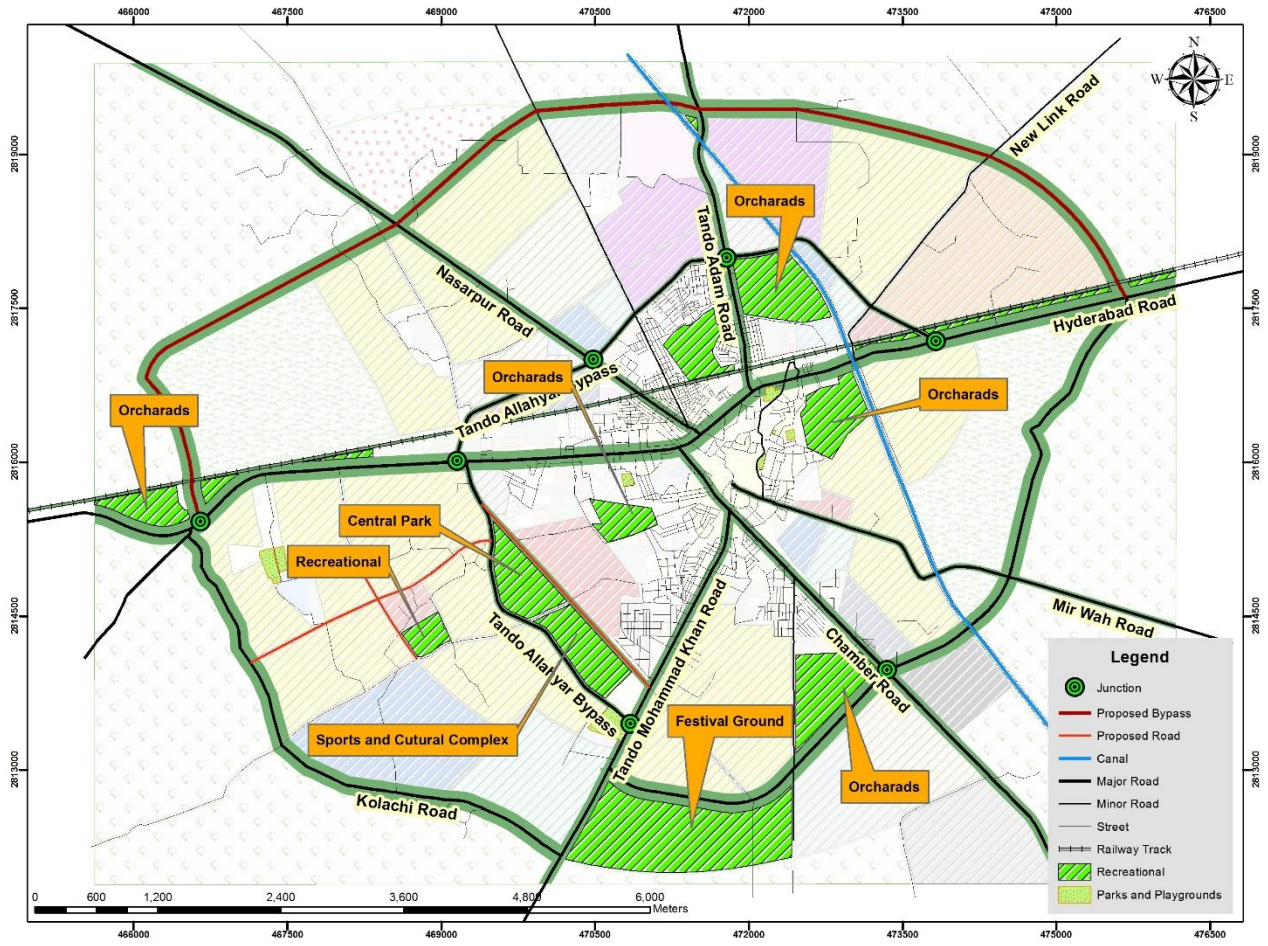



**Figure 6-8: Recreational Proposals of Tando Allahyar Town**

## Proposed Religious Landuse for Tando Allahyar Town

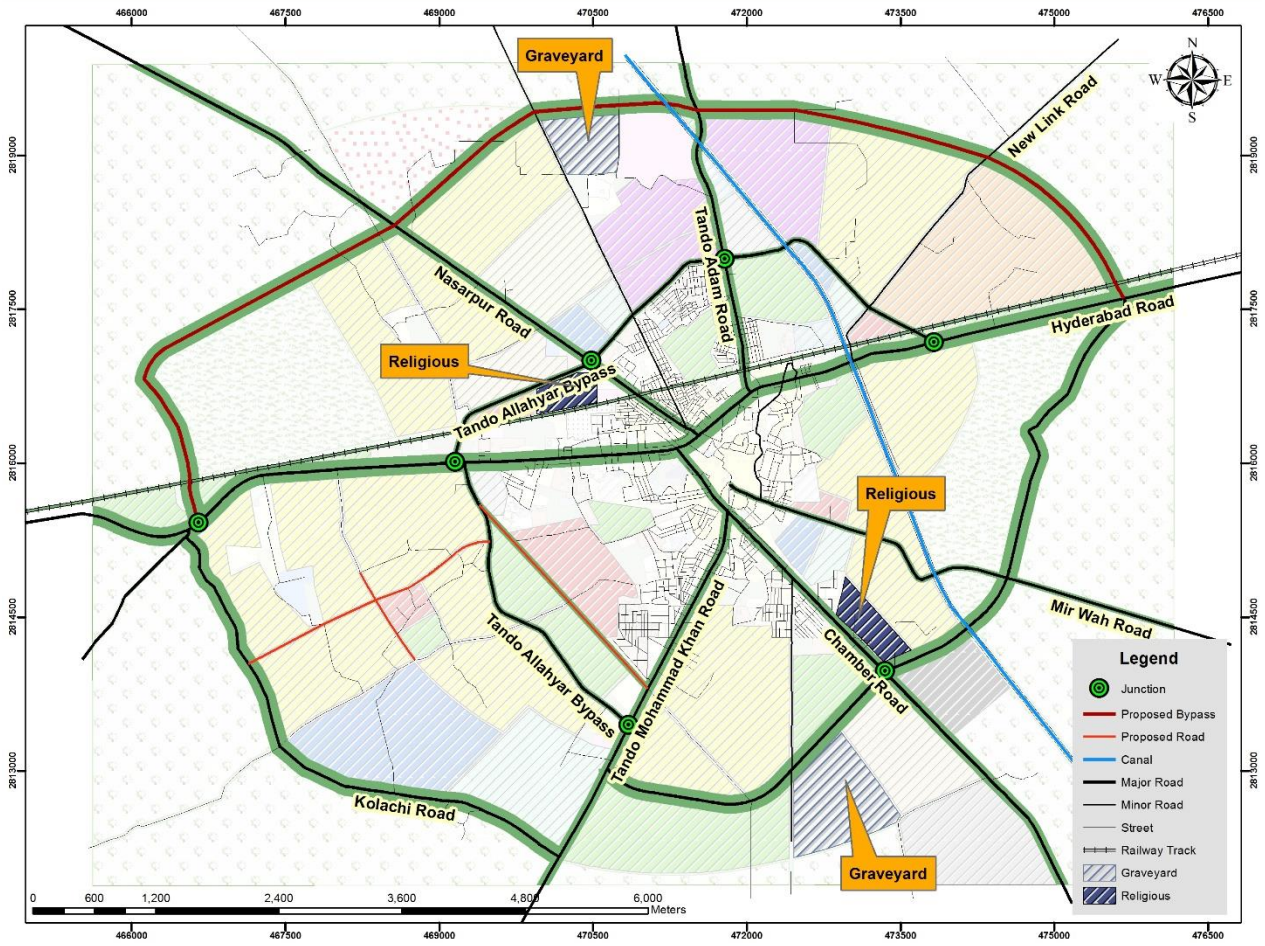



**Figure 6-9" Proposed Religious Landuse**

### 6.3.9 Immediate Action Plan for Core Urban Area

- **Provision of Open Spaces, Parks and Playgrounds:** Availability of recreational facilities can be a vehicle for positive social change for youth. Promoting recreational facilities benefits beyond the traditional aspirations of improved health and wellbeing.

**Parks**

Existing open spaces like Shah Latif Public Park in core urban area should be restored and maintained. New land for open spaces should be identified and process of land acquisition should be started for new activities.

| RECREATIONAL FACILITIES PRESERVATION | | | | | | |
|---|---|---|---|---|---|---|
| **S.No** | **Repair and Rehabilitation of Recreational Open Spaces** | **Area (Acre)** | **Rehabilitation Required Area wise or job wise cost (PKR)** | | | |
| | | | **Street / Road / Parking** | **Utility Infrastructure** | **Public Facilities** | **Security** |
| 1 | Shah Latif Public Park | 3.94 | 12.51 | 14.39 | 15.64 | 3.13 |
| 2 | Abdul Ghani Park | 1.51 | 4.80 | 5.51 | 5.99 | 1.20 |
| **Total PKR Rs. Million** | | | **17.31** | **19.90** | **21.63** | **4.33** |
| **Total PKR Rs. Million** | | **63.17** | | | | |

**Note:**
1. Rehabilitation of lanes, streets and connection minor and major roads.
2. Utility Infrastructure rehabilitation includes basic services of Water supply, Electricity supply and Gas supply.
3. Public facilities includes rehabilitation and provisioning of public toilets, proper seating arrangements.
4. As per the law and order situation security concerns makes the overall impact to uplift the society life w.r.t to secured environment.
5. All these basic services in every DHQ town core areas needs to be rehab for quicker revitalization of people's life.

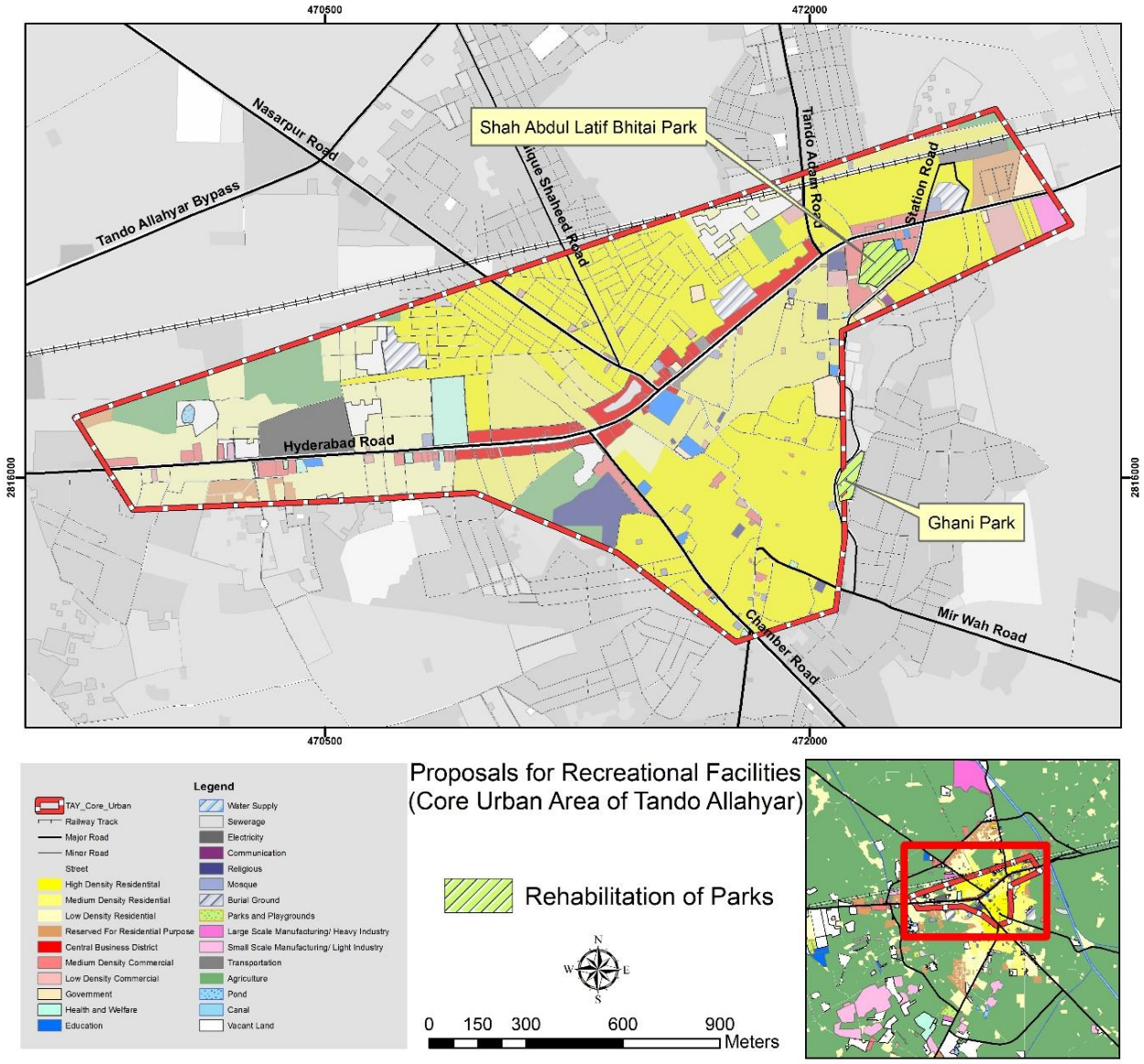



**Figure 6-10: Rehabilitation of Existing & Proposed Recreational Facilities for Core Urban Area of Tando Allahyar**

# 7. BASIC UTILITIES

## 7.1 Water Supply

### 7.1.1 Existing Situation

The Naseer Canal and several branch canals in Tando Allahyar provide water for agriculture industrial and domestic purposes. The banks of the canal are routinely checked and strengthened on a regular basis to ensure the security of a village.



**Figure 7-1: Naseer Canal near Tando Allahyar is next to Nangin Distributary**

**Water Intake (Water Supply Scheme)**

**Phase-I,** Tando Allahyar was completed in 1980 in which 8 Nos, tube wells were installed along with HSR of 60,000 gallons capacity and distribution system varying from 3" to 12" dia to provide 1.218 MGD of water to the design population of 22,000 persons at the rate of 20 gpcd up to 1979. After 5 years it was felt that the tube wells installed were unable to cope-up with daily water supply requirements and a great shortage of water experienced due to the projected population so water supply schemes **Phase-II** was started during the year 1984. The scheme was designed to supply 1.902 MGD water to the designed population of 71,600 persons up to the year of 1991 at the rate of 30 gpcd. As per the scope of schemes 5 Nos Tube wells were installed to ease the supply of drinking water to the end users. The water supply scheme of U.C I,II and III were approved in the year 2006-07 under the president package (Tando Allahyar District Share). As per scope of scheme 7 Nos tube wells were installed with vertical turbines i.e. 3 Nos for U.C II and 4 Nos. for U.C III & IV with delivery mains and distribution system in afore mentioned U.C's in (city area) Tando Allahyar and also water supply scheme (under MPA programme) in the year 2011-12 as per scope of scheme 3 Nos tube wells were installed with vertical turbines, delivery mains and distribution system but due to delay of energized power connection and not handed over to MC, the scheme is not functioning properly in public interest. The bores were chocked and pumping machinery was stolen. At present only five tube wells are functioning out of 23. These all of 23 tube wells were installed at the toe of Naseer Canal which is passing along the city at North East.

Since there is no shortage of ground water and also the quality of ground water along Naseer Canal is good, thus more emphases has been given to extraction of ground water through tube wells nearby canal.

Information on the operations routine of the tube wells or capacity of the pumps to extract water are not known due to the absence of bulk flow meters. Power supply is inconsistent so water extraction at best can be done for at least 12 hours a day.

As the groundwater quality of the city has turned brackish, the scheme is currently proposed at the surface water source (Naseer Canal) with the consent of Deputy Commissioner (DC) District Tando Allahyar, it is still under proposal stage. This scheme is proposed to further divide into four blocks to avoid the crossing of railway track and main roads in order to ease feeding to the various areas under the scheme. The blocks will consist of the colonies/area as under:





**O/H tank 50,000 gallon Public stand post deserted**

**Block "A''**

It consists of the population in between Railway Track and Bye Pass i.e Baloch, Para, Mastoi Colony, Zardari Colony, Talib-ul-Mola Colony, Pir Colony, Akbari Colony and adjoining colonies, District Secretariat, Govt. S.M College, etc.

**Block "B"**

This block consists of the area in between Railway Track, and main Hyderabad Mirpurkhas Road. The colonies are included i.e Memon society, Rind Abad, Highway Colony, Grid Station will be benefited.

**Block "C"**

Block "C" consists mostly area of U.C l in which the system is already existing with an old distributed network, in this block the remaining area of Hyderabad road, Soomar Colony, Rahim Abad Colony are included.

**Block "D"**

In this block, the area/ colonies are included i.e Kumhar Para, Mir Colony, Usmanabad, Ghari Meo Colony, Amanullah Shah Colony, Mujahid Colony, Bagari Colony, Ibrahim Colony and also Shah Latif Colony remaining portions (area) / population from the under execution water supply scheme for UC lll & IV.

**Distribution Network**

The Distribution Network consists of water mains of sizes from 3" & 12" diameter pipes, MS, AC & UPVC material of pipes being used.

The Tando Allahyar distribution network is divided into 4 zones (A, B, C, D) for equitable distribution of water for one hour in the morning and one hour in the evening. The distribution network consists of 3", 4", 8" & 10" 12" diameter pipes of AC, µPVC & MS material as available in the local market.

### Water Treatment Works

There are no water treatment works and they have not provided Chlorinators for any tube well. Raw surface water and groundwater are being supplied by direct boosting in the pipeline due to which leakages in the pipeline occur.

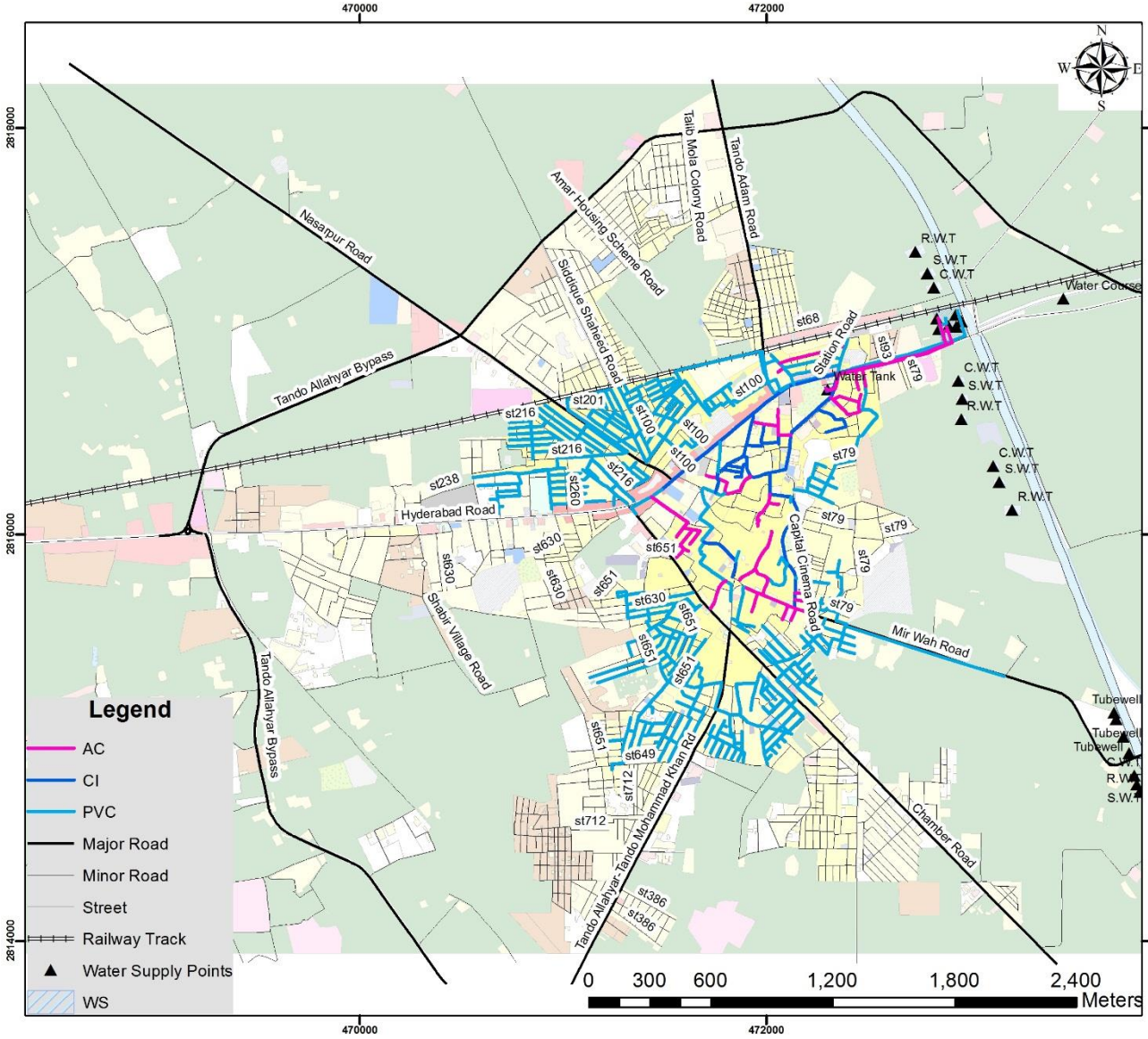



**Figure 7-2: Water Supply Network Map**

### Water Quality Assessment

Consultant carried out water sampling of TAY town, the test report is attached. Testing parameter results are not within permissible limits WHO / SSDWQ established for drinking water.

The city's groundwater source is depleting and contaminated at present but the utility is not in a position to abandon the majority of TWs or alarm the citizens of the critical situation.

**Surface Water Quality:**

The attached sample was collected from the pumping station (Surface Water). The surface water was found contaminated as per details are given in analytical report show non-compliance of WHO and SEPA standards against following parameters.

- Cadmium
- Mercury
- Residual chlorine
- Barium
- Coliforms (Total coliform)
- Fecal coliform

**Ground water Quality:**

- The second sample was taken from stand post groundwater. The testing failed due to the presence of cadmium, lead, Mercury and Barium.
- The Microbiological analysis confirms the presence of total coliform, total coliform, and E-coli.

### 7.1.2 Issues:

- Weak institutional arrangements with overlapping of roles and responsibilities
- High proportion of non-revenue water
- Dysfunctional water supply and sanitation schemes
- Ageing infrastructure
- Poor water quality from polluted and contaminated sources
- No treatment of raw water. Inadequate waste water treatment facilities
- High dependency on ground water which is depleting
- Inadequate water supply coverage, poor quality and intermittent supply;
- No water treatment plant or chlorinators on tube wells are provided.

### 7.1.3 SWOT Analysis

| Water Supply & Distribution | | | |
|---|---|---|---|
| 1. Intake sources available<br>2. Most of the town is having hand pumps and less than half of town is covered by pipe supply. | 1. Absence of systematic water supply system and treatment plant.<br>2. Poor administrative setup for water supply management and distribution. | 1. Adequate water resources available for water supply system development.<br>2. PPP in service delivery. | 1. Negative externalities on human and plant health<br>2. Depletion of water quality due to " "draw down" |

### 7.1.4 Need Assessment

#### (a) Current Water Supply

The current water supply is only 1.652 mgd as informed by PHED against the demand of 4.7 mgd. Most of the area is served by Tube Wells. This shortage of water is due to lack of infrastructure and there are no meters installed due to which intermittent supply causing an increase in water loss. As per PHED, more than 65% of town area has no proper water supply network, while current water supply is serving 35% area of Tando Allahyar Town.

#### (b) Demand

With the changing lifestyles and rising consumer standards, the water demands at the domestic levels are rising significantly. As found during the survey, PHED recommends 30 gpcd for the urban population in Sindh. Water demand and supply has been worked out on PHED parameters is as under:

**Table 7-1: Population and Water Demand Projected up to Year 2037**

| Year | Population | Water Demand @ 30gped. |
|---|---|---|
| **2017** | 156,562 | 4.7 mgd |
| **2022** | 183,403 | 5.5 mgd |
| **2027** | 214,846 | 6.4 mgd |
| **2032** | 251,680 | 7.6 mgd |
| **2037** | 294,828 | 8.8 mgd |

*Source: Consultants estimate Based on PHED criteria*

It is expected that the Tando Allahyar town will have a population of about 294,828 persons by 2037 and the daily demand of the town will be about 8.8 mgd for a whole day supply.

### 7.1.5 Sindh Drinking Water Policy 2017[36]

**Principles:**

- Population should be using an improved drinking water source which is accessible i.e. located on premises, available when needed and safe that is free of faecal and priority chemical contamination.
- Access to safely managed drinking water is a fundamental right of every citizen and that it is the responsibility of the Government to ensure its provision to all citizens.
- Water allocation for drinking purposes shall be given priority over other uses.
- In order to ensure equitable access, special attention shall be given to removing the existing disparities in coverage of safe drinking and for addressing the needs of the poor and the vulnerable.
- A supportive policy framework shall be developed that encourages alternate options through private provision, public-private partnerships, the role of NGOs and community organizations.
- Low cost technologies in water and sanitation, that are easy and cost-effective to maintain shall be developed and used.

**Objectives:**

- Develop criteria for installation of new drinking water supply schemes and ensure that all new schemes are safely managed, rationalized and constructed through need based criteria so that all areas and communities are served.
- Develop standardized service delivery models for both urban and rural drinking water supply schemes to improve efficiency, cost-effectiveness, improve monitoring and sustainability.
- Develop mechanisms for reuse, recycle and recharge of wastewater for other municipal and productive uses.
- Ensure that all drinking water supply systems are designed and constructed in line with the national drinking water quality standards and all municipal discharges comply with National Environment Quality Standards (NEQS).
- Install water treatment plants at existing drinking water supply schemes where required and incorporate water treatment facilities in all new drinking water supply schemes.
- Ensure development of water safety plans for all drinking water supply systems.
- Institute adaptation measures and disaster risk reduction and mitigation strategies to minimize the impact of climatic events on drinking water supply systems.

### 7.1.6 Strategic Development Plan

**i. Long Term Plan**

- The design and layout of water supply pipes, storage tanks etc. should ensure that there is no contamination by overflowing sewerage systems, for example by maintaining a minimum distance between the two systems.
- Cater to the need of systematic water supply system and treatment plant.
- Construction of RO plant for the purpose of treating ground water as well as pumping of excess water thus reducing water logging problem.

[36] Sindh Water and Sanitation Policy 2017

**ii. Short Term Plan**

- The design and layout of water supply pipes, storage tanks etc. should ensure that there is no contamination by overflowing sewerage systems, for example by maintaining a minimum distance between the two systems.
- Extension of existing irrigation system will boost agricultural productivity.
- Introduction of PPP in service delivery.
- Additional UG and OH Tanks required to meet the water demand

### 7.1.7 Priority projects

**I. Improvement Of Water Intake Works**

- **Project Justification**

  The purpose of the proposed project is a safe water solution for the water intake from present source for Tando Allahyar. The intake point is Naseer Canal and other sources of water supply. The wastewater is discharged into the canal through the pumping station which has been constructed by HDA/WASA without considering that canal water is being used for drinking purposes by the local people downstream of this canal.

  There is no zoning system of distribution and no water meters are installed. Distribution network improvement (DNI) is essentially required for equitable distribution. Existing water distribution network is old, which need to be improved. Improvements in water intake works cover below components;

  - Construction of intake structure adjacent to Canal which will comprise of screens, pipe, valve chamber
  - Installation of Pumps based on solar power
  - Construction of Reservoir

- **Project Benefits**

  People of Tando Allahyar are facing shortage of water supply. The project is to improve the collection of raw water supply collection. This project includes increasing the number of pumping stations and up gradation the sizes of pipe lines. After implementation of this project, the source of water intake will be safe.

- **Implementing Authority:** Tando Allahyar MC, Government of Sindh and PHE Department.

- **Estimated Cost: 100.00 Million PKR Approx.**

**II. Repair & Rehabilitation of Water Supply Network 35% Tando Allahyar MC (Approx. 406.77 Acres)**

- **Project Identification & Justification**

  Almost all the network of Water Supply in Tando Allahyar is in poor condition and most of it is damaged (especially in the old town area). More than 65% of areas of town have no proper Water Supply Network. This project will help to supply water in those areas where the network is existing but damaged.

  The objective of the project is to get uninterrupted water supply to the inhabitants of Tando Allahyar town. The project is to improve the collection of raw water supply collection. This project includes increasing the number of pumping stations and up gradation the sizes of pipelines. Repair and rehabilitation of existing water supply network cover below main components such as;

  - Excavation
  - Pipe cost
  - Gate valve/ Washout valve/ Air release valve
  - Joints repairs
  - Balancing slopes at all network
  - Checking of pipe life with rupture checker
  - Valves for area wise pressure maintenance

- **Project Benefits**

  After implementing of this project, the Potable water will be supplied to rest of area of Tando Allahyar DHQ town.

- **Implementing Authority -** Government of Sindh- PHE Department Tando Allahyar

- **Estimated Cost:** 407.77 Million PKR Approx. (Short Term)

| | |
|---|---|
| **Population** | **156,562** |
| Total Urban Boundary Area | **4198.5** |
| Total Urban Boundary Area (Excluding 2518.7 Acres includes Agriculture, Vacant and Water Bodies Area) | **1,680** |
| Core Urban Area | **517.59** |
| 35% served Area in Acres | 407.77 |
| Proposal for Repair & Rehabilitation of Existing Water supply scheme shall help to supply safe potable water to served 35% population of Tando Allahyar town. One Million per Acre = 407.77 | 407.77 |

**III. Provision of New water supply network for 65% of Tando Allahyar MC (Approx. 755.43 Acres)**

- **Project Justification**

  Almost all the network of Water Supply in Tando Allahyar is in poor condition and most of it is damaged (especially in the old town area). More than 65% of areas of town have no proper Water Supply Network (excluding Core Town Area). This

| | |
|---|---|
| **Population** | **156,562** |
| Total Urban Boundary Area | **4198.5** Acres |
| Total Urban Boundary Area (Excluding 2518.7 Acres includes Agriculture, Vacant and Water Bodies Area) | **1,680** Acres |
| Core Urban Area | **517.59** Acres |
| 65% unserved Area in Acres | 755.43 Acres |
| Installation of New water supply scheme is proposed to cater 65% population / Area of Tando Allahyar town @ Rate of 3.0 Million Per Acre (2266.30 Millions) | 755.33 Acres |

project will help to supply water in those areas where the network is not available. The objective of the project is to get uninterrupted water supply for treatment to supply potable water to the inhabitants of Tando Allahyar town.

- **Project Benefits:** As already discussed above that Tando Allahyar MC have not a proper supply of clean Water & also old water Supply network is present in most of the areas. So after implementing this project, the Potable water will easily supply to the people.

- **Implementing Authority :** Government of Sindh- PHE Department Tando Allahyar

- **Estimated Cost: 2266.30 Million PKR Approx. (Short Term)**

**IV. Repair & Rehabilitations of OH Tank (1 Nos. 50000 Gallons Capacity)**

- **Project Justification**

  At present, there is a only one over-head tank present in Tando Allahyar town with capacity of 5,0000 gallons. On priority basis it is required to rehabilitiate existing overhead tank. The compenents for rehabiliattaion of Overhead tank are as follows:

  - Inlet and outlet
  - Overflow Pipe
  - Drain
  - Vent
  - Level Indicator

- **Project Benefits**
  This project will help to provide required water supply to people of Tando Allahyar town through reserving sufficient water.
- **Implementing Authority:** Government of Sindh, Tando Allahyar MC and PHE Department
- **Estimated Cost: 75.00 Million PKR Approx.**

| PROPOSED PRIORITY PROJECTS | | | | | | |
|---|---|---|---|---|---|---|
| **S. No** | **Project Name** | **Estimated Cost In Millions** | **ADP** | **Non ADP** | **Status** | |
| | | | | | **Short Term** | **Long Term** |
| **Water Supply** | | | | | | |
| **1** | Improvement In Water Intake Work | 100.00 | - | Non ADP | Short Term | - |
| **2** | Repair & Rehabilitation of existing Water Supply Network 35 % (407.77 acres) except core urban area. | 407.77 | - | Non ADP | (Phase Wise) | - |
| **3** | Provision of New water supply network for remaining 65 % (755.33 Acres) except core urban area. | 2,266.30 | - | Non ADP | (Phase Wise) | - |
| **4** | Repair & Rehabilitation of existing OH Tank | 75.00 | - | Non ADP | (Phase Wise) | - |

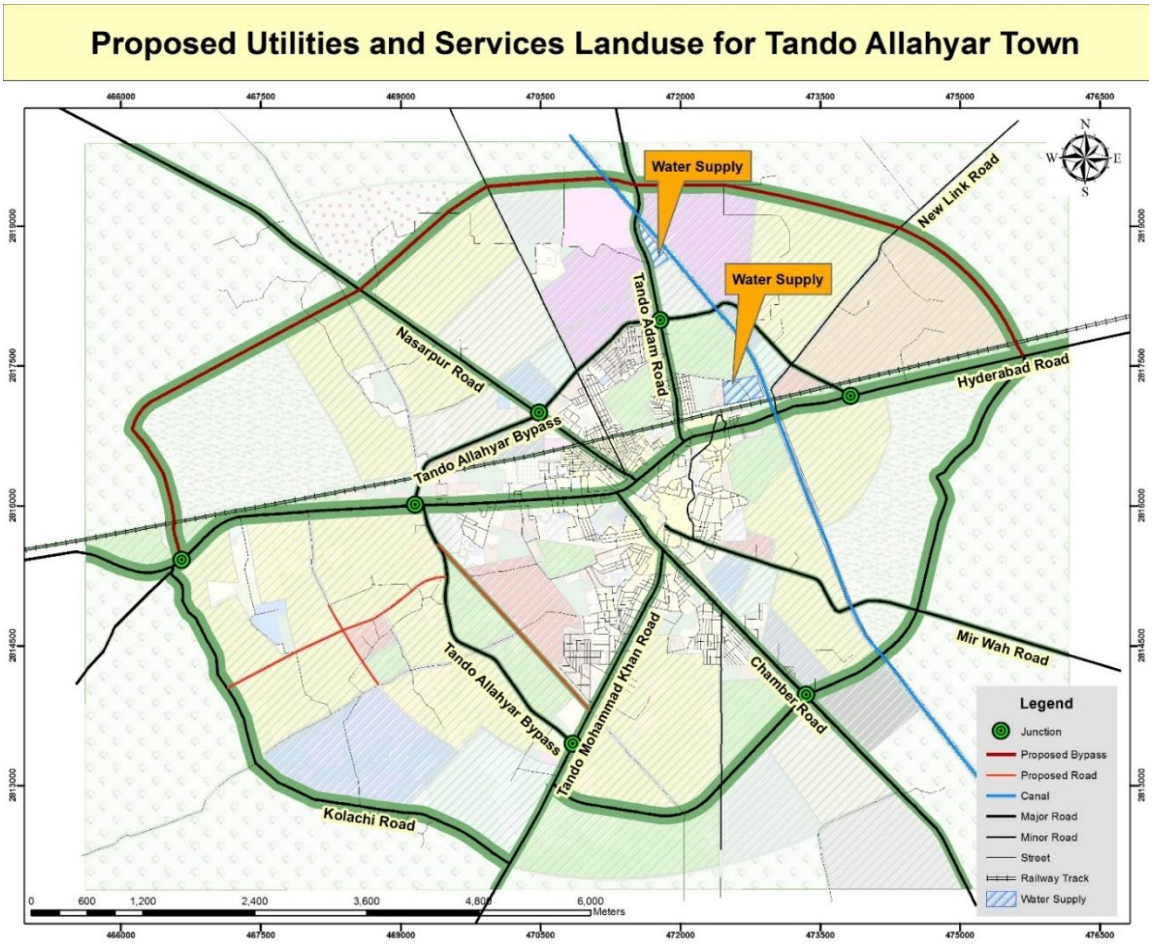
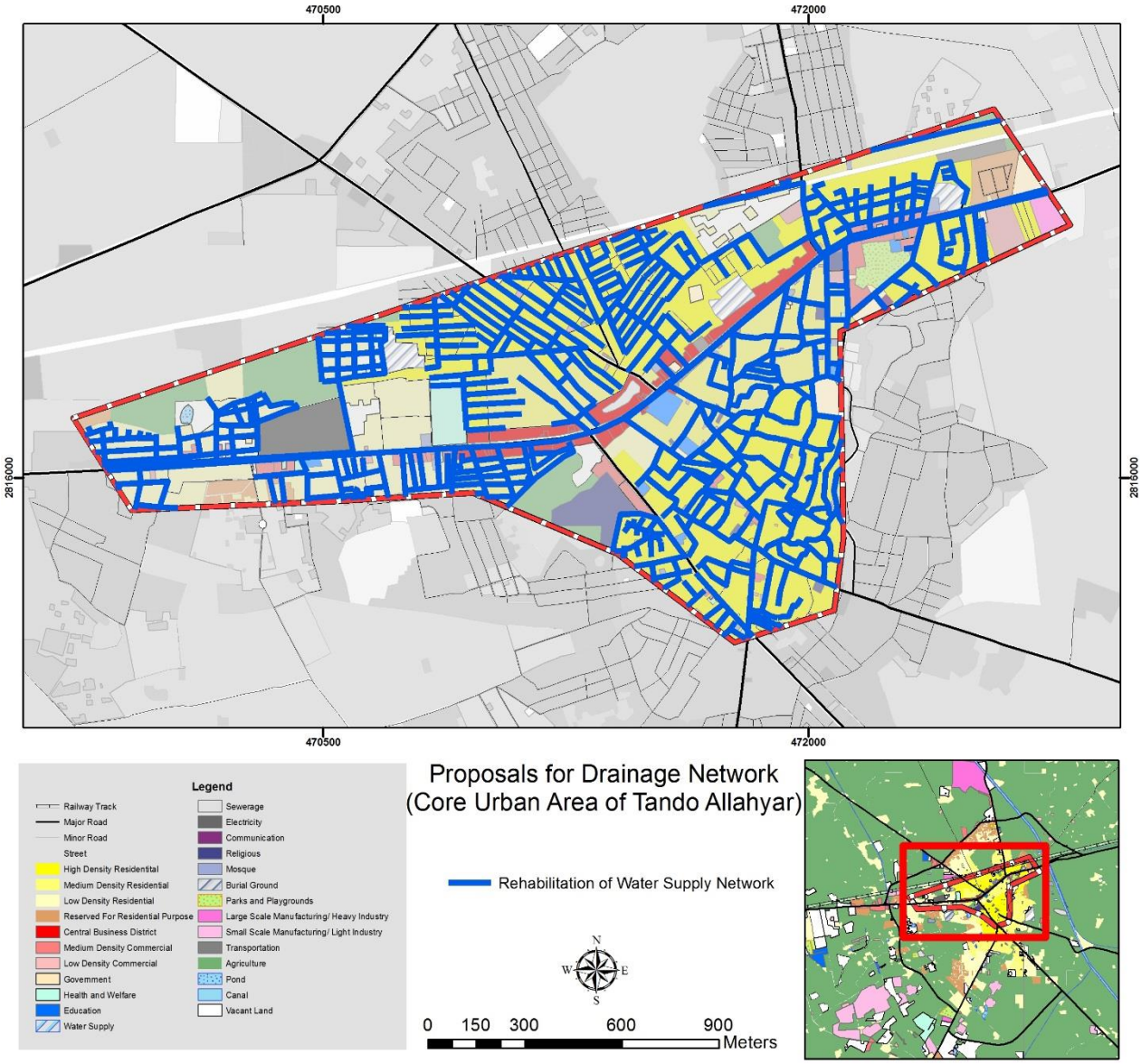



**Figure 7-3 : Future Municipal Services Proposal of Tando Allahyar Town**

### 7.1.8 Immediate Action Plan for Core Urban Area

Water supply should be done for the entire town including core urban area. But on immediate basis keeping in view the requirement of clean drinking water of the community of Tando Allahyar, there is need to rehabilitate the water supply network of Core urban area.



## 7.2 Sewerage and Drainage

### 7.2.1 Existing Situation

The drainage and sewerage system in Tando Allahyar consists of surface drains and AC pipe sewers in part of the town. The sewerage system lacks proper operation and maintenance due to funding constraints, and a shortage of technical staff and proper equipment and vehicles. The use of AC pipes is not allowed as per WHO standards.



**Figure 7-6: Broken Drain with solid waste**

The sewerage/wastewater generated is collected through drains and sewers in screening chambers and collection wells at 9 disposal pumping stations and is pumped through rising mains for ultimate disposal into irrigation canals.



**Figure 7-6: Garbage near drain & stand post**

**Existing Infrastructure:**

- Sanitary wastewater generation @70% of water supply
- ASTM Pipes used for laying 8" to 24" sewers.
- Disposal pumping stations = 9 Nos.
- Existing Drains Type A = 72,257 ft.
- Existing SWD Type B = 45,351 ft.
- Rainfall is occasionally due to which no separate drains exist for stormwater.
- Maintenance by Town Committee and MC.

**Details on the infrastructure are summarized below.**

- Conveyance is by gravity flow in the surface drain and pipe sewers to 9 pumping stations for final disposal to Irrigation canals.
- System is undersized and shallow sewers laid
- No treatment.
- Poor condition of sewerage and drainage is the main municipal services problem, and cause of waterborne diseases.
- Rehabilitation and extension of the system are needed.

Underground sewerage system, but needs to be properly designed and installed



**Figure 7-6: In-let drain is choked**

**Treatment Facilities**

Wastewater is not treated since treatment plants (oxidation ponds) are not operational due to the shortage of technical staff and funding.

**Disposal**

Final disposal of effluent is mostly to irrigation canals, which in many cases are the main water supply source for towns downstream, this pollution of water supply sources leads to widespread waterborne diseases. Analyses of wastewater samples carried out earlier show that SEPA Allowable Standards for total suspended solids (TSS) and biological oxygen demand (BOD) were exceeded (i.e. not complied with) in nearly all the wastewater samples tested.

There are nine disposal stations with main disposal mainkhad, names are as follows:

1. MNA Scheme MainKhad
2. Deh Naheki
3. Soomra colony Disposal
4. Mirwah Disposal
5. Pir Colony Disposal
6. Bheel Colony Disposal
7. Sattar Pump Disposal Station
8. Lift Machine Chamber Road
9. Zardari Colony Disposal

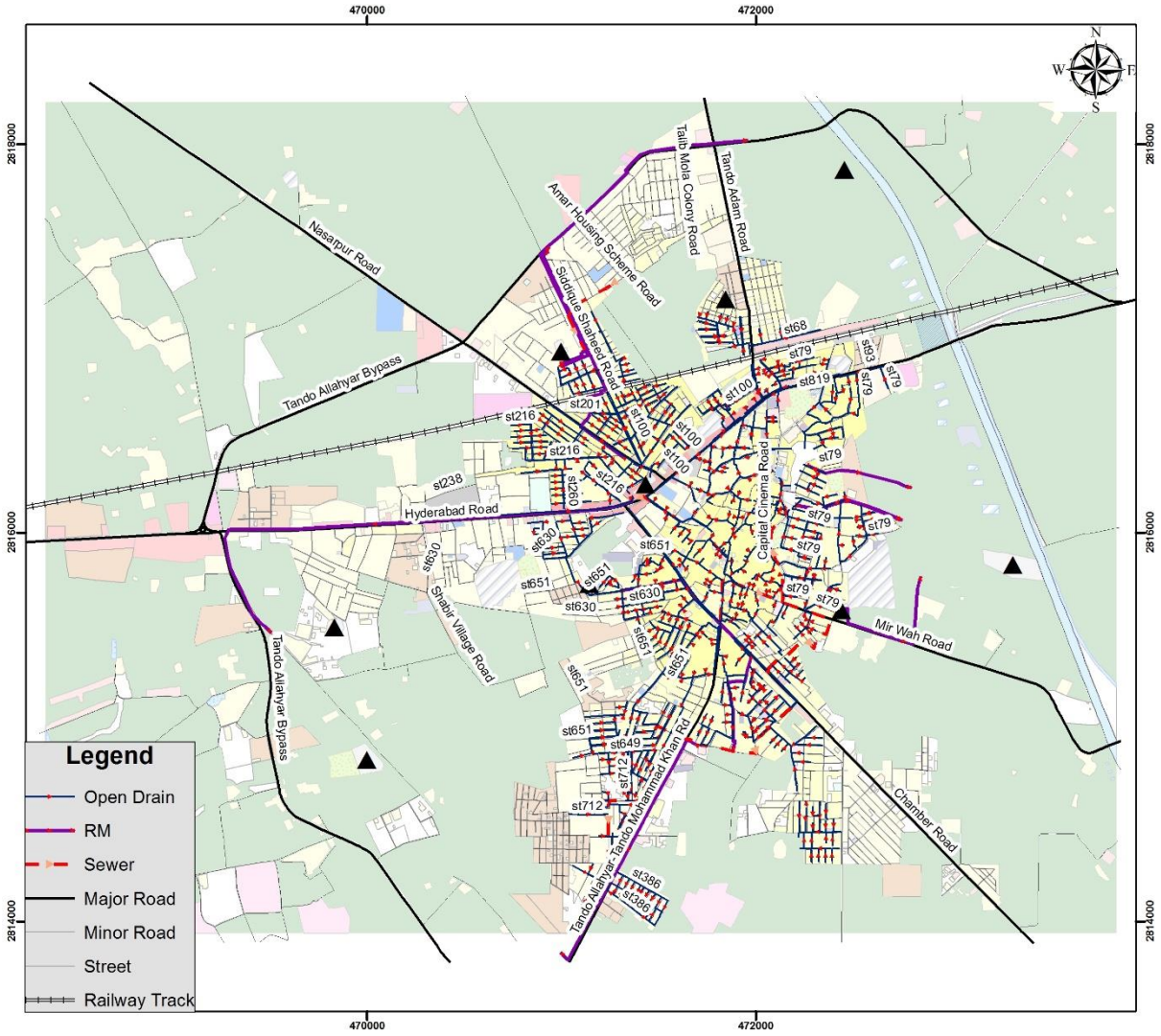



**Figure 7-7: Drainage Works of Tando Allahyar Town**

### 7.2.2 Issues:

- Open drain on street.
- Improper channelization of drains and Over flow of storm water drains
- Depression areas causing permanent pounding.
- Reliance on sewer for flood/storm water drainage
- Improper operation and maintenance of sewerage facilities.
- The many informal settlements are located in poorly drained low lying land can be subject to flooding, resulting in ponds of stagnant water in their midst and providing breading grounds for mosquitoes and water borne diseases. There is no standby pumping equipment at disposal stations.

- The drainage system and structures are in poor condition with open smelly drains and sewers.
- There is no sewage treatment and untreated sewage collects in ponds / swamps or directly discharge in to irrigation canal. The residents were dissatisfied with current sewerage system.
- No waste water treatment plant, thus raw sewage is being discharged into water bodies.

### 7.2.3 SWOT Analysis

| Sewerage and Drainage | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. The existing sewerage system facilitates the urban area of the city.<br>2. Combine system (open channel and sewer) serving most of the town area.<br>3. Sufficient land for disposal sites is available. | 1. Poor maintenance condition; garbage enters into sewers, which requires desisting.<br>2. Drain water is disposed of untreated into canals and drains.<br>3. Open drains<br>4. Outdated and disconnected network.<br>5. No treatment before disposal<br>6. generation of sewerage<br>7. Rain/Flood water still standing in town centre areas.<br>8. Drainage and sewerage system of the urban areas are not constructed properly and disaster risk reduction measures are not incorporated while such construction is carried out. Consequently even small amount of rain blocks the drains, which inundates the streets, houses and markets. | 1. Improvement of general hygiene/ public health by cleaning sewerage system<br>2. Canals should be saved from toxic disposals.<br>3. Development of well-designed trunk sewerage network with less number of disposal station.<br>4. Planning for well-connected gravity based open drainage system covering ponds<br>5. Job opportunities for skilled staff for proper maintenance<br>6. Revenue can be generated through charging services for cleaning.<br>7. PPP in service delivery<br>8. Reclamation of land (that accommodates water of flood/rain) for public land uses. | 1. Storm water flooding/ over flow of sewers<br>2. Environmental degradation<br>3. Funding & policies.<br>4. Removal of encroachment<br>5. Land grabbers |

### 7.2.4 Need Assessment

**Table 7-2 : Estimated Wastewater generation for the period 2037**

| Town | Description | 2017 | 2022 | 2027 | 2032 | 2037 |
|---|---|---|---|---|---|---|
| Tando Allahyar | Water Demand | 4.7 mgd. | 5.5 mgd. | 6.4 mgd. | 7.5 mgd | 8.84 mgd |
| | Sewerage Flows @70 % Water supply | 3.3 mgd | 3.85 mgd | 4.48 mgd | 5.25 mgd | 6.2 mgd |

*(Actual = 4.7 X 70 % = 3.3 mgd)*

### 7.2.5 Sindh Sanitation Policy 2017 [37]

**Targets:**

- Eradicate Open Defecation from Sindh Province by 2025, while 70% villages of 13 high priority districts achieve the status of open defecation free by 2020.
- 100% households in Sindh have access to and use sanitary latrines by 2025, while 70% of rural households in high priority districts will achieve this by 2020.
- Strengthen and implement liquid waste management with sewer lanes and Covered/improved drains with 85% coverage of urban areas and 60% coverage in rural areas.
- Create and develop wastewater treatment mechanisms to cover 75% of urban areas and 40% in rural areas by 2025.
- More than 90% of rural households and 100% of urban households wash hands with soap at critical times by 2025.

**Principles:**

- The Policy aligns itself with the goals and targets of the SDGs for sanitation, which require sanitation services to be safely managed, have a private improved facility where faecal wastes are safely disposed on site or transported and treated off-site; plus a hand washing facility with soap and water.
- Safely managed sanitation services is a fundamental right for all persons in Sindh province, and should be ensured through enhanced access to marginalized and low resource areas with equitable distribution of resources. Recognition of inequities and rights based programming will be given key emphasis during the planning, execution and monitoring of sanitation programmes.
- The policy seeks to prioritize the areas that pose the greatest risk to human health namely hygiene awareness and excreta disposal, and then address the environmental health risks that are posed by poor drainage and solid waste disposal.
- Increase access to high quality nutrition-sensitive services, including access to water, sanitation facilities, and hygiene.
- The policy shall promote the community led approaches to strengthen the demand for safely managed improved sanitary conditions that emerges from local communities. The multi-

[37] Sindh Water and Sanitation policy 2017

stakeholder partnerships and collaborations comprising of citizens, governments, civil society, non-governmental organizations (NGOs), donors, academia, media, etc. be encouraged to maximize the synergies in designing and implementation of interventions.

- Affordable (in terms of designs as well as availability of water) and cost effective technical solutions with necessary modifications and adaptations in technical standards to be consistent with cultural sensitivities of specific communities will be identified and marketed.
- The component sharing model as envisaged in the National Sanitation Policy will be
- Institutionalized gradually in which the community is responsible to construct lane and neighborhood level sewers (internal development) on self-help basis and the government focuses on trunks, disposal and treatment unit (external development).
- The role of women shall be an integral component of behavioral change communication strategies and project planning, implementing and monitoring through capacity development and social mobilization of relevant stakeholders.

### 7.2.6 Strategic Development Plan

The aim of Strategic Development plan is Provision of adequate Sewerage and Drainage facilities to the DHQ Town through equitable, efficient and sustainable sanitation services. Lanes may continue using concrete drains and to discharge into sewers through screening chamber.

**i. Long Term Plan**

- To raise living standards of community by providing improved drainage and Sewerage services.
- Priority for sanitation will be accorded to un-served, under-served areas, and disadvantaged areas.
- The plan will focus mainly on the details of the trunk sewers, treatment and disposals and re-use options. All other sanitation related agencies (cantonments boards, railways, etc.) will develop their plans in accordance with the overall plan.
- Wherever existing sewerage systems discharge untreated sewage in storm water drains or irrigation canals it should be treated before discharging, and may be used for agricultural purposes or converted into lakes and ponds as part of recreational areas.
- An appropriate sewerage system plan should be implemented.
- Improvement of general hygiene/ public health by cleaning sewerage system.
- PPP in service delivery.
- Reclamation of land (that accommodates water of flood/rain) for public land uses.

**ii. Short Term Plan**

- Gravity flow systems will be used for sewerage schemes so as to avoid pumping and O&M costs.
- Acquire Land & Provide Stabilization ponds for full treatment to produce acceptable quality of effluent for re use.
- Completely removal or treatment of land where temporary pounds have been formed in main town area.

### 7.2.7 Priority Projects

**i. Repair & rehabilitation of primary and secondary drains 76% (883.28 Acres) @ of one million per acre) except core urban area**

- **Project Justification**

  Almost all the drains in Tando Allahyar are in poor condition and most of it are open drains. More than 76% of areas of Tando Allahyar have drainage system. Only 23% have manual cleaning system. This project will help to proper dispose of sewage water of Tando Allahyar town in to RBOD which is passing along Tando Allahyar city. The drains are needed to rehabilitate and where the drains are not available there should be provided.

  Rehabilitation of storm water and sewerage works will include the following components.
  i. Repair of Walls, bed and Top slab of drains, manholes and chambers
  ii. Reconstruction of drains, chambers and manholes where found completely damage
  iii. Cleaning of pipes, chambers, drains and inlet gratings
  iv. Laying of news pipes after replacement of old damage pipes

- **Project Benefits**

  As Tando Allahyar have not proper sewage and drainage system so after implementing of this project, the sewage water of Tando Allahyar town will easily dispose and help to drain the rain water.

- **Implementing Authority**
  Government of Sindh- PHE Department Tando Allahyar

- **Estimated Cost:** 883.28 Million PKR Approx.

**ii. Installation / Construction of new drainage network for remaining 23% (267.38 Acres) @ of three million per acre) except core urban area**

- **Project Justification**

  Almost all the drains in Tando Allahyar are in poor condition and most of it are open drains. More than 76% of areas of Tando Allahyar have drainage system. Only 23% have manual cleaning system. This project will help to proper dispose of sewage water of Tando Allahyar town in to RBOD which is passing along Tando Allahyar city. The drains are needed to rehabilitate and where the drains are not available there should be provided.

  Construction of storm water and sewerage works will include the following components.
  i. Construction of Walls, bed and Top slab of drains, manholes and chambers
  ii. Installation of drains, chambers and manholes where found completely damage
  iii. Laying of pipes, chambers, drains and inlet gratings

- **Project Benefits**

  As Tando Allahyar have not proper sewage and drainage system so after implementing of this project, the sewage water of Tando Allahyar town will easily dispose and help to drain the rain water.

- **Implementing Authority**
  Government of Sindh- PHE Department Tando Allahyar

- **Estimated Cost:** 801.92 Million PKR Approx.

**iii. Construction of Waste Water Treatment Plant**

- **Project Justification**

  At the present, wastewater of Tando Allahyar town directly dispose to the Jamrao canal without any treatment. Wastewater is not treated, since treatment plants are non-existent due to the shortage of technical staff and funding. Final disposal of effluent is mostly to irrigation canals, which in many cases are the main water supply source for towns downstream this pollution of water supply sources leads to widespread waterborne diseases.

  After WWTP implementation water that is no longer needed or is no longer suitable for use into bilge water that can be discharged back into the environment. It's formed by a number of activities including bathing, washing, using the toilet, and rainwater runoff. Wastewater is 99.9% water and 0.1% waste. The capacity envolves around 06 to 07 MGD water treatment. Everything that goes down the drain or the toilet makes up wastewater. In order to understand wastewater treatment, it is important to know the various components that challenge out wastewater treatment processes, like total suspended solids, biochemical oxygen demand and contaminants. To treat this water the WWTP consists of following parts/components;

  - Preliminary screens.
  - Tanks and mixers.
  - Chemical dosing skids.
  - Sludge pump skids.
  - Catwalks & maintenance platforms.
  - Controls & instrumentation.
  - Sludge dewatering.

- **Project Benefits:**

  After the feasibility study, the wastewater treatment plan will be developed and treated water will be useful for different purposes. This project is expected to improve health conditions considerably. This project has a positive impact over the whole population.

- **Implementing Authority:** Government of Sindh- PHE Department and Tando Allahyar MC

- **Estimated Cost:** 200.00 Million PKR Approx.

| S. No. | Project Name | Estimated Cost In Millions | ADP | Non ADP | Status | |
|---|---|---|---|---|---|---|
| | | | | | Short Term | Long Term |
| **Sewage & Drainage** | | | | | | |
| **1** | Repair & rehabilitation of primary and secondary drains 76% (883.28 Acres) acres one million per acre) except core urban area | 883.28 | - | Non ADP | **Short Term** | - |
| **2** | Construction of new drainage network for remaining 23% (267.38 Acres) except core urban area | 801.92 | - | Non ADP | **Short Term** | - |
| **3** | Construction of Waste Water Treatment Plant | 200.00 | - | Non ADP | **Short Term** | - |

## Proposed Utilities and Services Landuse for Tando Allahyar Town

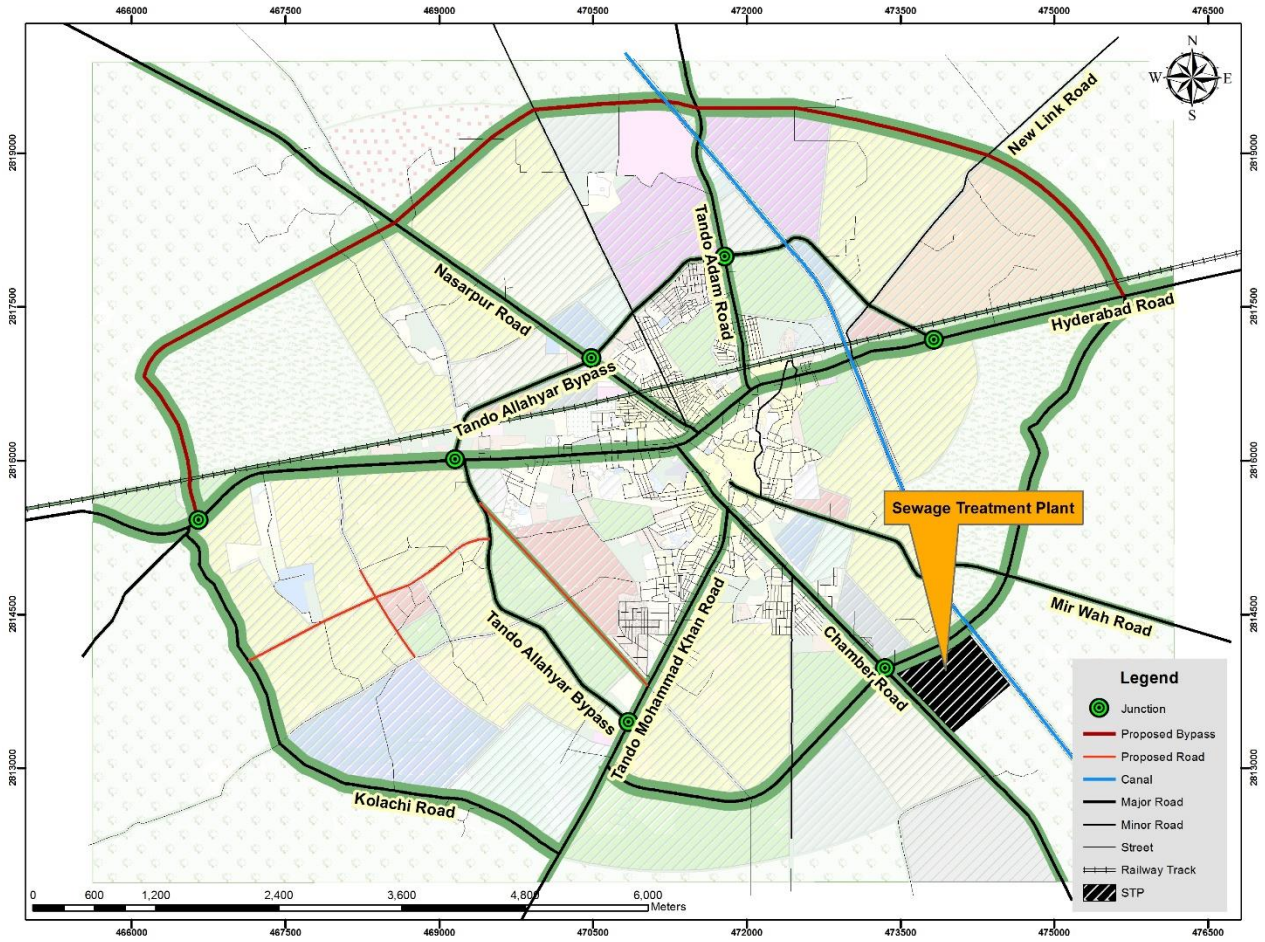



**Figure 7-8 : Future Municipal Services Proposal of Tando Allahyar Town**

### 7.2.8 Immediate Action Plan for Core Urban Area

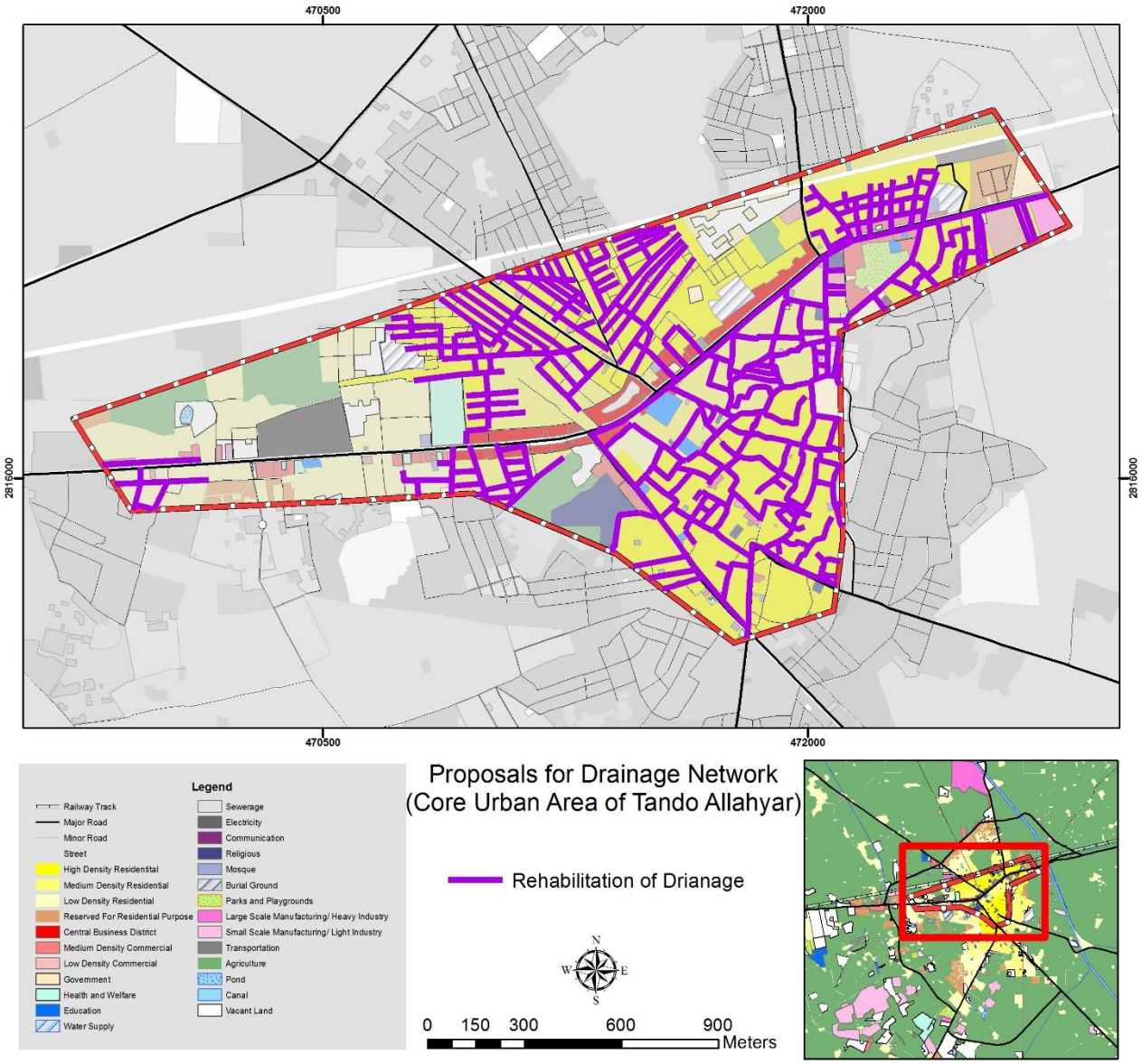
Drainage channels in core urban areas should be in the form of underground drainage pipes, however at least covered drains should be used to maximized road and street space. In core urban area gully traps should be developed in all four sides of the chowks or road junctions and they may be connected to underground sewerage system or covered drain system, but it is recommended to divert the surface run off directly for landscaping.

Core urban area of Tando Allahyar suffering due to unavailability of planned network of drainage schemes. Population of Core urban area is facing lot of problems due to stagnant sewerage water on Narrow Street.

Below pictures shows the drainage issues of core urban area.

| S.No | Name | Area in Acre | per acre cost (PKR) million | Cost (PKR) |
|---|---|---|---|---|
| **Total Core Urban Area : 517.59 acre** | | | | |
| 1 | Sewerage System | 517.59 | **1.26 Million (Per acre)** | **652.61** |
| 2 | Storm Water Drain System | | | |
| | | | **Total Cost (PKR). Million** | **652.61** |

**Note:**
* Rehab of Sewerage system includes all urban core area network system with all related machinery and equipment.
* Rehab of Storm water drain system includes all the core town area storm drain system through all steeps slopes and peak areas with all linking equipment and machinery.


470500
472000
2816000
2816000
470500
472000
Legend
Railway Track
Major Road
Minor Road
Street
High Density Residential
Medium Density Residential
Low Density Residential
Reserved For Residential Purpose
Central Business District
Medium Density Commercial
Low Density Commercial
Government
Health and Welfare
Education
Water Supply
Sewerage
Electricity
Communication
Religious
Mosque
Burial Ground
Parks and Playgrounds
Large Scale Manufacturing/ Heavy Industry
Small Scale Manufacturing/ Light Industry
Transportation
Agriculture
Pond
Canal
Vacant Land
Proposals for Drainage Network
(Core Urban Area of Tando Allahyar)
Rehabilitation of Drianage
N
W
E
S
0 150 300 600 900
Meters

## 7.3 Solid Waste Management

### 7.3.1 Existing Situation

#### I. Current Practice of Solid waste Collection & Disposal

After the passing of the Sindh Solid Waste Management Board Act in 2014, the Sindh Solid Waste Management Board (SSWMB) has been established which has the responsibility to collect and dispose of all kinds of solid waste being generated in Sindh. At present SSWMB has directed the municipal committees for identification of land for Garbage Transfer Stations and Landfills so that garbage collection and transfer & transport operations could be handed over to SSWMB for effective management of solid waste. Meanwhile, feasibility studies of medical hazardous waste of Hyderabad, Mirpurkhas and Shaheed Benazirabad are in progress. Once the municipal committees would be able to allocate proper and adequate land for waste disposal on a long term basis then SSWMB will come into action for effective SWM at primary and secondary level in these District Headquarter Towns. As indicated, TC/MC is officially responsible for the entire solid waste management of the district under the directives of SSWMB. The waste collection system is primary to secondary type having a street collection and then transfer & transport to the disposal site. The street collection points are not permanent structures rather empty corners or vacant places. Besides, every locality has got throw away sites in the form of depressions, empty areas, cuttings areas, etc.

For MSW collection there are two types of tractor-towed trolleys. The bigger sized makes an average 6 trips a day whereas the reduced one generates averages 8 trips daily. MSW collection frequency is 6 days a week.
Refuse vehicle is not used daily rather it generates average of 8 trips a week specifically for the collection of hospital waste from City Hospital and Female Dispensary of the town. The vehicles and equipment required by the municipality is as follows:

1. Cesspool 01 No
2. Mazda (Refuse van) 06 No
3. Tractor Trolley (hydraulic) 04 No
4. Loader (fully equip) 04 No

Tractor trolley, refuse van and tractor loader are available for loading and transferring MSW from various secondary collections points with the help of the same number of tractor operated shovel bucket loaders.





A refuse van is also available. It is Mazda Master Truck which has got a hydraulically operated tipping system to offload the MSW collected from various secondary collection points.

The municipality has a total strength of 939 of which there are 298 employees (permanent field sanitary workers) with sanitary inspectors who are responsible for carrying out the daily street sweeping, collection of waste using hand trolleys (two-wheeler) and other manual means for transferring the street waste to nearby secondary collection points. There is a further demand for 200 sanitary staff.

### II. Collection Mechanism of Solid Waste

- Main Hyderabad/MirpurKhas Road near Tawakul CNG in Bhada land along the roadside (Dumping Site measured about 1 and ½ acre).
- Earlier the garbage was dumped alongside Naseer canal Hyderabad/MirpurKhas along Roadside but now there is no space to gather furthermore.

Municipal Committee is officially responsible for the entire solid waste management of the town. The office location and the premises of the Tando Allahyar town provides a functional office cum workshop station for its waste management fleet. MSW collection vehicles, tractors, trolleys, and other equipment are stationed and operates from the administrative office hence remains the focal point of the management and operational activity of solid waste management.

Every locality has got throw away sites in the form of depressions, empty areas, cuttings areas etc. These types of non-designated points if coming in the collection route are often served by the municipality staff or usually avoided due to a shortage of time and resources constraints. Besides, there are more or less 05 established and active secondary collection points. These are permanent / semi defined structures developed as empty corners or vacant places.

### III. Hazardous Waste

There is no data available on the hazardous waste generation and its management in Tando Allahyar. However, the waste generated in healthcare facilities (HCF) such as hospitals and laboratories is mingled with the MSW. The estimated quantities of hazardous waste (risk waste) can be estimated from the bedded healthcare facilities.

**Table 7-3: Hazardous waste (Healthcare waste) source and estimation in Tando Allahyar**

| S. No. | Healthcare Facilities (HCF) | No. of Beds | HCW @ 1.1 kg/bed/day |
|---|---|---|---|
| 1 | **Civil Hospital 01 No.** | 100 | 110 |
| 2 | **Taluka Hospital** | 32 | 35.2 |
| 3 | **Rural Health Unit 04 No.** | 24 | 26.4 |
| 4 | **Private Hospitals** | 180 | 198 |
| 5 | **Basic Health Unit 14 No.** | 28 | 30.8 |
| **Total (21)** | | **364** | **400.4 kg per day** |

*Source: Health Profile of Sindh 2018, Bureau of Statistics, Govt of Sindh, and Recent study on HWM, SSWMB unpublished ICEPAK*

Hence the healthcare waste is insignificant in comparison to the MSW generated. It is also observed that no measures are taken to segregate and treat the hospital waste as infectious or hazardous waste as it should not be mingled with the MSW. Instead, the waste is being dealt with as commingled waste and managed along with other waste to be handled ordinarily

**IV. Industrial Waste**

Tando Allahyar is primarily an agro-based district and the industrial base in this district is dependent on agriculture. This district has established industries that are related to agriculture i.e. the raw material, for these industries, is provided by the agriculture sector. Mehran sugar mill is the largest industry in the district. Besides, small cotton ginning factories are also abundant in the district. Also, Flour and oil mills have been established in this district. Since there is no record of other kinds of hazardous waste being generated due to industrial activity in the town of Tando Allahyar, it is assumed that any such waste generated would form part of the Municipal collection as well.

### 7.3.2 Issues

- Though Tando Allahyar is comparatively a developing town with all basic amenities like electricity, natural gas, water supply, telecomm network, waste management services, etc. but the general public lacks basic awareness on the importance of sanitation and significance of health issues.
- People do not even hesitate to throw used sanitary napkins uncovered in streets. Accordingly vacant plots in any locality offer opportunity for the nearby residents to use it as throw away site. Drains get clogged by throw away articles, rain water get stagnant in depressions and smooth the progress of mosquitoes as breeding ground.
- No protective soil cover neither on top or bottom is provided and burning of waste is further increasing the quantum of environmental pollution and health hazards.
- Poor maintenance condition; garbage enters into sewers, which requires desisting.
- No treatment before disposal
- No policy for re-cycling, and reduction in generation of Solid Waste
- Mixing of solid waste disposal into Sewerage.

### 7.3.3 SWOT Analysis

| Solid waste Management | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Municipal Corporation is responsible for operating mechanism for solid waste management<br>2. System in place with improving efficiency, there is a slightly improvement in garbage collection and allocation of landfill site to dispose of toxic waste<br>3. Recycling by scavengers | 1. Poor financial and operational management system.<br>2. There is no system to identify toxic wastes produced by various activities.<br>3. Communities' particularly low income groups are not aware with disposal procedures.<br>4. 70% households does not have provision of infrastructure for sanitation purpose. | 1. Appropriate measures should be adopted for collection and re-cycling of SWM.<br>2. SWM recycling will help to generate revenue.<br>3. More landfill sites should be identified for future disposals.<br>4. Establishing of a primary collection system would add more revenue resources.<br>5. Opportunity for recycling and reuse of solid waste, such as RDF, bio-gas etc.<br>6. PPP in service delivery | 1. Improper sanitation<br>2. Poor public health<br>3. Outdated drainage system<br>4. Threats to plants and animal life<br>5. Loss of trust building with people in future. |

### 7.3.4 Need Assessment

The waste generation rate estimated from the studies conducted earlier in SCIP-3 project suggests to be around 0.4 – 0.45 kg per capita per day[38]. However, it is recommended to undertake the field study for the determination of waste generation and characterization for Tando Allahyar in order to plan and design the solid waste management system. Considering waste generation rate for design purpose as 0.45 kg per capita per day with the current (2017) population of the municipal committee of Tando Allahyar as 156,562 the total municipal solid waste load arising in the municipality is approx. 70,450 kg or 70.5 tons per day.
It is estimated that out of which merely 46 tons is collected, transported and dumped or previously used to reach dumpsite at Tando Allahyar – Mirpurkhas Road along Naseer Canal which has now fully saturated and the new dumpsite is now along the same road near Tawakal CNG on Bhada land. Based on National Refrence Manual (NRM): on population of 10, 000, one acre of landfill area is required. So for the

[38] SCIP-03 Program Management, Project Preparation and Implementation Support for Planning & Development Department, Solid Waste Management Studies of Towns of Central Cluster of Province of Sindh, 2013, Brisbane City Enterprises Pty Ltd, & MMP

population of 156,562 in 2017, landfill area of 15.65 acre is needed and for the projected population in 2037 of 294,828 landfill area of approx. 29.48 acre is required.

### 7.3.5 Policy Guidelines[39]

Implement integrated solid waste management with 100% coverage in urban areas and 60% in rural areas of Sindh by 2025.

**Principles:**

- Develop integrated solid waste management system.
- Conduct a study on wastewater and solid waste to develop town level profiles (including Infrastructure, equipment and staffing)
- Conduct waste characterization studies.
- Smooth and efficient Solid waste collection and disposal by providing door to door collection services.
- Ensure Effective solid waste management by developing a list of staffing, hardware and equipment for solid waste management.
- Efficient Solid waste disposal and recycling by establishing transfer stations to reduce disposal time.
- Recycle solid waste by systematic separation.
- Sanitary landfill options identify for towns where it is feasible.
- Formalize contracts with companies for waste to energy options. At least each mega/intermediate city has a WTE (Waste to energy options) in place.
- Provide each town with a centralized and functional high risk hospital waste disposal facility.
- Update status of all slaughterhouses (recognized and unrecognized) in each district and prioritize those for rehabilitation, solid waste and wastewater management.
- Provide refresher training on slaughterhouse safety and hygiene practice guidelines to 100% slaughterhouse staff in recognized slaughterhouses in safe handling and disposal of carcass, entrails, hides, and wastewater.
- Efficient and effective management of Industrial solid waste by determining the current status of industrial solid waste production and disposal and development of strategies and actions for efficient and effective management of industrial solid waste.
- Develop and use technologies that are affordable, applicable and cost effective to maintain the solid waste management.
- Allocation of proper landfill sites outside of the urban area and Final disposal of waste at least 500m from housing to a contained area chosen and designed according to geological conditions, water table, wind etc.

[39] Solid Waste Management Policy for Sindh
Sindh water and sanitation policy 2017

### 7.3.6 Strategic Development Plan

#### i. Long Term Plan

- **Community and Private Sector Involvement in SWM:** The active involvement of local communities and the private sector is essential for an effective waste management system. It would be beneficial to start involving local communities and the private sector in waste management, which has been a slow process. This process needs to be accelerated in a well planned manner.
- **Public Awareness and Education:** It can be brought about in many different ways through the electronic and printed media and street talks, through community organizations such as schools, institutions, and households, using a public-address system, distributing leaflets, for public awareness.
- **Encourage On-site Reuse and Recycling:** This method will reduce material consumption and the quantity of hazardous waste generated. As a result, material cost and waste treatment cost will be reduced.
- **Implement Waste minimization:** It is done through pilot and demonstration projects. These pilot and demonstration projects can be used to raise awareness of basic waste-minimization measures.

#### ii. Short Term Plan

The aim of this strategic development plan is to improve the quality of life of the people of DHQ Town and the physical environment and also provide guidelines for the management of solid waste in the town.

- The collection and disposing of solid waste is the responsibility of the MC.
- The collection system needs to be made more effective and efficient.
- MC has already initiated some work on biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system.
- Techno-economic feasibility and detail study of characterization of waste is proposed on basis of the policy guidelines.
- Develop integrated solid waste management system keeping in mind the method, procedure and design at front end, middle end and back end, based on best possible public health practices and environmental protection laws/rules.
- Industrial waste disposal should be treated separately and safely.

### 7.3.7 Priority Project

- **Feasibility Study for Solid Waste Management Mechanism**

  - **Project Justification**

    The collection and disposing of solid waste is the responsibility of the Tando Allahyar MC. The mechanism for solid waste management is not available in Tando Allahyar so therefore a

detailed feasibility is proposed to develop an efficient solid waste management in Tando Allahyar town.

- **Project Benefits**
  This project will help to find feasible solution to provide efficient mechanism of solid waste management and also help to improve the health conditions of the town which are causing un-hygienic due to un-availability of solid waste management in the town.
- **Implementing Authority:** Government of Sindh- PHE Department Tando Allahyar**Estimated Cost: 80 Million PKR Approx.** However, a Feasibility study is required for the designing and costing of the project.

| S. No. | Project Name | Estimated Cost In Millions | ADP | Non ADP | Status | |
|---|---|---|---|---|---|---|
| | | | | | Short Term | Long Term |
| **Solid Waste** | | | | | | |
| 1. | Feasibility study for construction of Central Composting Plant | 20.00 | - | Non ADP | **Short Term** | - |
| 2. | Procurement for land acquisation process for Landfill Site (08 acre). | 60.00 | - | | **Short Term** | - |

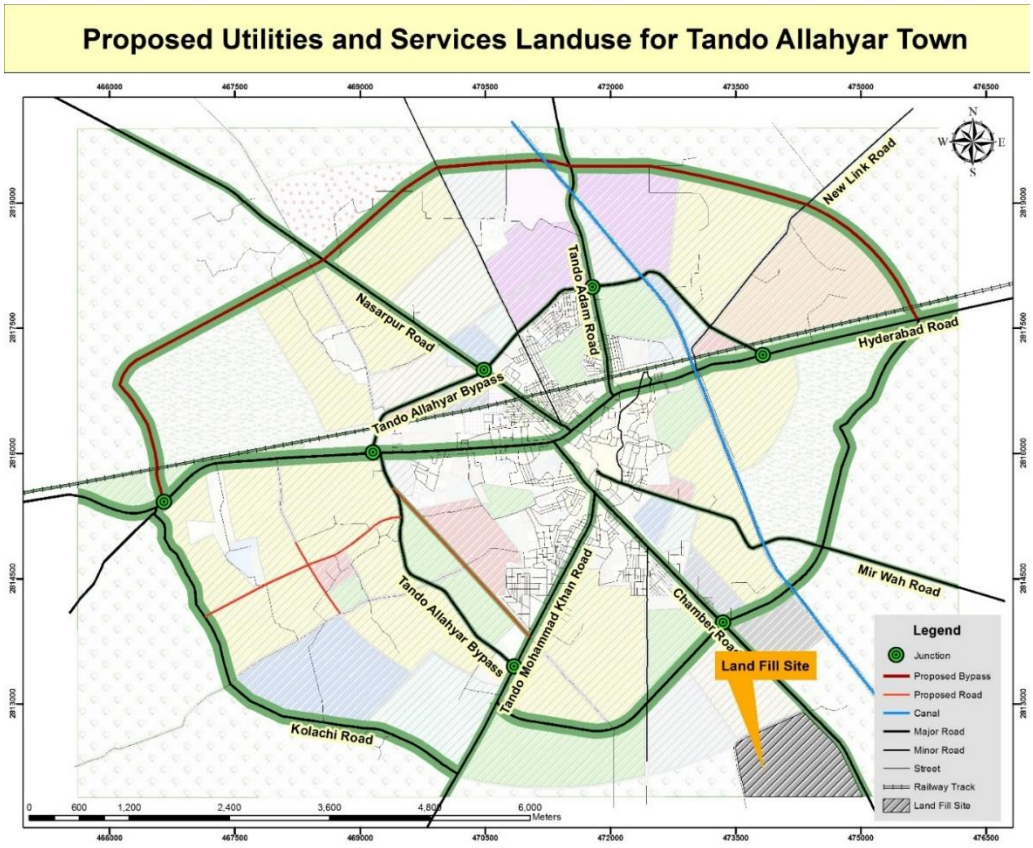



***Figure 7-9 : Future Solid Waste Landfill Site Proposal of Tando Allahyar Town***

### 7.3.8 Immediate Action Plan for Core Urban Area

Heaps of solid waste is evident in the core urban area. It is proposed that primary level collection i.e. door to door collection system should be launched immediately by Municipal Committee. Waste generated by the market of the core urban area should be picked on daily basis. Shopkeepers can pay a small amount on monthly basis to the sweepers say 250rs/month and domestic consumers availing this facility can pay a small amount on monthly basis say 100rs/month. Street sweeping should be done on daily basis and this should be ensured by TC/MC Tando Allahyar. Secondary Level Collection (Collection from Preliminary dumping area at ward level to the main Landfill/ dumping site) should also be encouraged.

However, it is highly proposed to introduce recycling of reusable items and segregation of solid waste into paper, plastic and glass from household level. These could be achieved from awareness campaingn and installation of segregated bins at mohallah level.Other actions include :

- Recycling and Segreration of solid waste into paper, plastic, glass,
- Appropriate measures should be adopted for collection and re-cycling of SWM.
- SWM recycling will help to generate revenue.
- More landfill sites should be identified for future disposals.
- Establishment of a primary collection system would add more revenue resources.

The waste generation rate estimated from the studies conducted earlier in the SCIP-3 project suggests being around 0.4 – 0.45 kg per capita per day40. However, it is recommended to undertake the field study for the determination of waste generation and characterization for Tando Allahyar to plan and design the solid waste management system. Considering the waste generation rate for design purposes as 0.45 kg per capita per day with the current (2017) population of the town committee of Tando Allahyar as 156,562 the total municipal solid waste load arising in the municipality is approx. 70,453 kg or 70.4 tons per day. Secondary Level Collection (Collection from Preliminary dumping area at ward level to the main Landfill/ dumping site) should also be encouraged.

However, it is highly proposed to introduce recycling of reusable items and segregation of solid waste into paper, plastic and glass from household level. These could be achieved from awareness campaingn and installation of segregated bins at mohallah level.

- **Suitable locations for Disposal Points for core urban area**

  There are number of recognized / established active primary collection points in the town. These are not permanent structures but rather empty corners or vacant places. Besides regularly served designated collection points, every locality has got throw away sites in the form of depressions, empty areas, cuttings areas etc. These types of non-designated points if come in the collection route are often served by the municipality staff or usually avoided due to shortage of time and resources constraints No any specific information regarding, generation of Solid waste specific to

[40] SCIP-03 Program Management, Project Preparation and Implementation Support for Planning & Development Department, Solid Waste Management Studies of Towns of Central Cluster of Province of Sindh, 2013, Brisbane City Enterprises Pty Ltd, & MMP

core urban area is not available. That's why below map is showing tentative disposable points for collection of solid waste.

| S. No. | Name | Containers Nos. | Cost / Container | Cost (PKR) |
|---|---|---|---|---|
| **Total Core Urban Area : 517.59 acre** | | | | |
| 1 | Placing of garbage containers at different sites/ locations in core town area | **120** | 520,000.00 | **62,400,000.00** |
| | | | **Total Cost (PKR). Million** | **62.40** |

**Note:**
* Solid Waste Management System includes – handcarts and donkey pull-carts for primary collection; then open trucks, tractor/trolley systems etc.

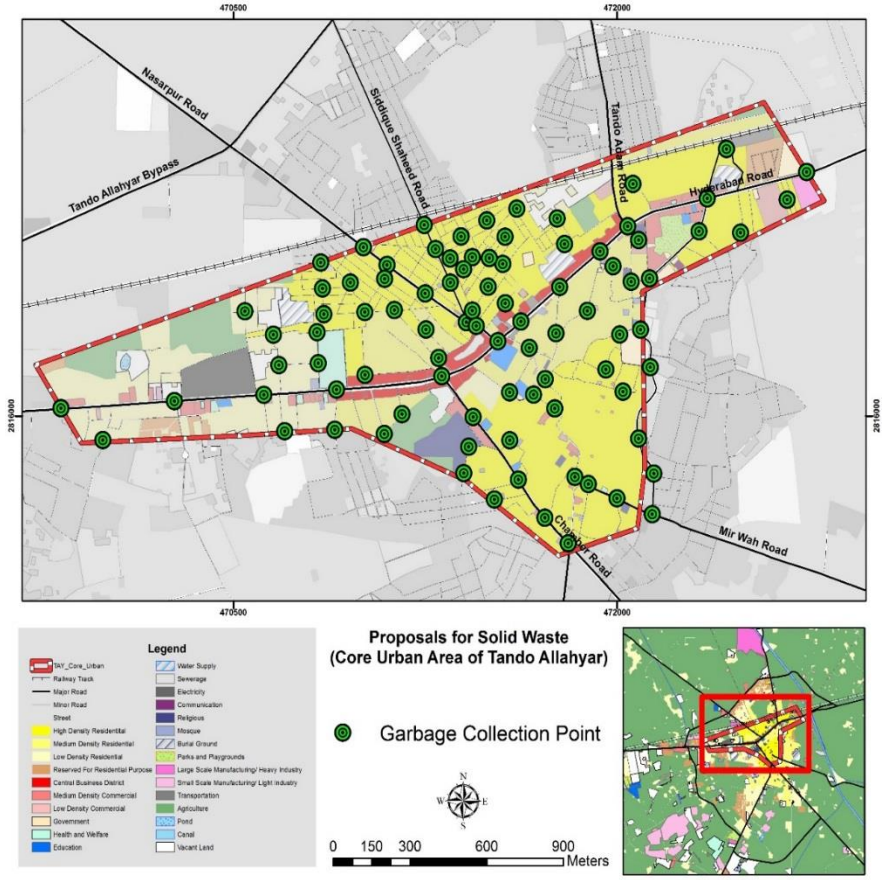



***Figure 7-11: Proposed Garbage Collection Points for Core Area of Tando Allahyar***

## 7.4 Firefighting

### 7.4.1 Existing Situation

Currently there is one fire brigade station situated in Tando Allahyar with 36[41] firefighting staff and two functional firefighting vehicles. The Municipal committee Tando Allahyar has no separate budget for firefighting and no vehicle maintenance facility in town.

### 7.4.2 Need **assessment**

As the current total population of Tando Allahyar is 156,562, which will be 295,096 in 2037. As per National reference manual the one fire station is recommended for 0.1 million population and one fire engine is required for 50,000 population. Currently there are 2 vehicles are available with municipal committee. So four more vehicles are needed for Tando Allahyar Town.

### 7.4.3 Strategies

- City committee people would need to be trained about local early warning systems, evacuation, first aid search and rescue, firefighting etc.
- Provision of Sprinkler protection should be ensured in each multi story building for firefighting.
- Assure that all areas of the Town have the highest level of fire protection, at the lowest possible cost, to meet existing and future demand.
- Establishment of fire-stations to accommodate required number of fire vehicles.
- Establish sub-stations at different locations to ensure short response time for the whole city.
- Increase service efficiency through number of vehicles, dedicated staff and financial mechanism.
- To ensure readiness of all vehicles with ample stocks of POL and spares.

[41] MC office Tando Allahyar

# 8. INFRASTRUCTURE

## 8.1 Transportation

### 8.1.1 Existing Situation

**A. Regional Connectivity (Air, Rail, Road)**

- **Airport**

In actual Tando Allahyar has direct access to Hyderabad Domestic Airport via N-120 Hyderabad MirpurKhas National Highway, but due to some technical reasons, Hyderabad domestic airport is now closed for commercial traffic as of 2013. Approximately distance from Hyderabad to Tando Allahyar is 42 km (25 miles).




**Figure 8-1: Hyderabad Airport**

- **Railway Station**

In 1906 during the British Raj, a Railway station was established in Tando Allahyar. This step brought about a revolution in the town increasing its importance as an agro-trading hub. The district has a good railroad network presently. The Railway Line runs along with the Northern part of the city. These tracks can be used as an evacuation point in a flood or in disasters.



**Figure 8-2: Tando Allahyar Railway Station**

Tando Allahyar railway station is located in the main city of Tando Allahyar. The City is also linked with the national network of Pakistan Railways through the Karachi railway line via Kotri-Hyderabad and Hyderabad-Mirpurkhas Railway station (Hyderabad- Mirpurkhas Line).

- **Bus and Truck Stand**

There is one Local Bus stand in Tando Allayar town. It provides public transport, like bus, truck, van and car services to the public. Several types of routes are covered by them, such as Hyderabad to Mirpurkhas, Nasarpur, Chamber, and Tando Adam. There are also numbers of an illegal bus, truck and car stand for public transport.

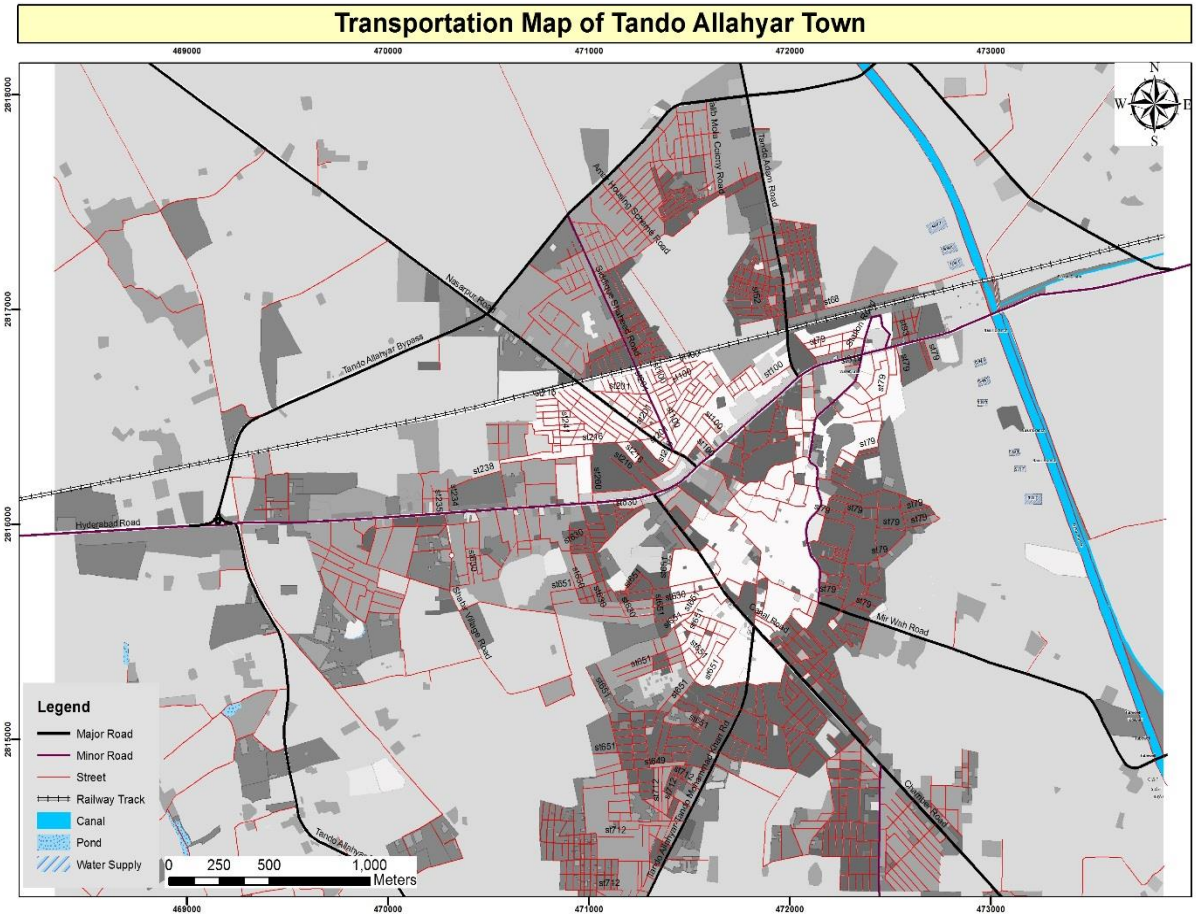



**Figure 8-3: Transportation Map of Tando Allahyar Town**

## B. Local Road Network

- **Condition of Road**

The existing road network in the Tando Allahyar district is fairly good. National Highway Hyderabad-MirpurKhas road N-120 passing through the Tando Allahyar City and provincial highways connect the whole district quite well. The district headquarter of Tando Allahyar is connected with its taluka headquarters of Tando Allahyar, Jhando Mari and Chamber through metaled roads. Most of the private transporters run passenger buses and vans on all the regional and national routes.



**Figure 8-4: Road Condition**

**Table 8-1: Condition of Local Roads**

| S. No. | Name | Condition | ROW (feet) Aprox. |
|---|---|---|---|
| 1 | Hyderabad Mirpurkhas Rd | Good | 40 |
| 2 | Tando Allahyar Nasarpur Rd | Good | 30 |
| 3 | Tando Allahyar Tando Adam Rd | Good | 30 |
| 4 | Tando Allahyar Chamber Rd | Good | 40 |
| 5 | Tando Allahyar TMK Rd | Good | 30 |

Drainage issues on the roadside are evident due to which roads are worsening day by day. The absence of street furniture is another issue due to which traffic incidents take place. Encroachments and unorganized/illegal Qinqui and Rickshaw stands are also evident on the roadside which causes on street and off-street parking issues.

**Internal Roads**

The internal road network of Tando Allahyar town is not satisfactory with deteriorated physical conditions, encroachments on roads, congestion, roadside parking, and drainage issues. The main internal roads include Main Bazar Road, Moj Darya Road, Mirwah road, Cinema Road, Fort Road and Shaheed Nazir Abbasi road.

**Major Intersections / Junctions**

In overall Tando Allahyar, there are three major intersections inside the town area namely; Chamber Naka, Naserpur Naka and Tando Adam Chowk. These intersections or junctions have the same major issue of traffic congestion. In addition the N-120 Bypass in north is forming two major outer intersections with Hyderabad Mirpurkhas Road (N-120); one towards Rashid Abad and other towards Mirpurkhas.

**Street Pattern**

After the construction of the railway track, the city, initially expanded around the track. In addition with the construction of Hyderabad Mirpurkhas Road (N-120), the traditional linear growth pattern resulting in more congested development and thickly populated areas with a haphazard street pattern.

The exiting commercial activities and offices are situated along the major roads i.e. Chamber Road, Naserpur Road, Tando Adam Road, TMK Road and Hyderabad-Mirpurkhas Road. Most of new public projects are established along the Naserpur and TMK Roads. And the new development in the city is being developed on a grid towards Rashid Abad.

**Parking/Street Furniture/Street lightning**

Generally no separate designated parking is available, thus roadside parking is common practice along Chamber Road, Naserpur Road, Tando Adam Road, and Hyderabad-Mirpurkhas Road. Similarly, no street furniture is observed, though street lighting is available but needs to be upgraded and maintained where installed and need an extension in other areas as required.

### 8.1.2 SOWT Analysis

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| **LAND USE & TRANSPORTATION** | | | |
| **Land Use Pattern & Transportation** | | | |
| 1. Mixed land uses (residential, commercial, industrial, administration)<br>2. Good national / regional connectivity through railway , air and road networks<br>3. Local public transport provisions by auto-rickshaws<br>4. Strong network of inter and intra city transportation.<br>5. Appropriate road space available for street furniture installation in most locations<br>6. Bus stops are available for intra region trips. | 1. Unplanned street network<br>2. Absence of public transport<br>3. Ribbon type commercial development in residential neighbourhood.<br>4. Poor traffic management.<br>5. Lack of opportunities for integrated transport provisions<br>6. Lack of coordination between different transport operating agencies.<br>7. No parking space for rest hours for drivers.<br>8. Less provision of street furniture<br>9. Non-aesthetic streetscape<br>10. Haphazard on street parking reduces road capacity<br>11. Poor maintenance of railway station<br>12. Poor administration and management control<br>13. Encroachments around bus bays and railway land sites. | 1. Promotes compact development.<br>2. Activity centers (support local business)<br>3. Opportunities in the form of wide roads available for mass transit system development<br>4. Wider road space can be used to facilitate multiple transport activities by implementing road space design standards<br>5. Adequate space available for street furniture installation<br>6. Proper management can promote public transport services.<br>7. After removal of encroachments adequate space available for traffic signs, lane markings and foot paths | 1. Encroachments<br>2. Congestion<br>3. Reduced flow of traffic (low speed)<br>4. Security issues<br>5. Economic losses due to transporters strikes<br>6. Inconvenience due to traffic congestion<br>7. On street parking<br>8. Traffic congestion. |

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| | | 8. A new transport terminal for goods transport will facilitate timely supply of industrial goods. | |
| **LOCATION & CONNECTIVITY** | | | |
| 1. The district is well-connected with other districts through high quality roads<br>2. Existing roads can be used as evacuation point in flood disaster. Good roads are also helpful in carrying out relief activities<br>3. It is surrounded by rich agriculture land parcels which supports its agro based economy.<br>4. Well connected to highway network that can be used for mass transit services.<br>5. There is a wholesale vegetable market at Khawaja stop from where vegetables are transported to the mega cities of country on daily basis.<br>6. There are four major route for connectivity. | 1. Majority of town population resides in rural setting having less means of public transportation services.<br>2. Highway is not equipped to accommodate full functioning mass transit service. | 1. May grow as a large size green and planned settlement in future, if planned in accordance with appropriate planning measures.<br>2. A twin city model can be developed along both side of river canals in future.<br>3. More agro based industries, regional fruit and vegetable markets and on the basis of good agricultural potential for the distribution of these products an efficient transport network can be developed.<br>4. Contribution in positive regional and local economic development. | 1. Loss to local business.<br>2. Flooding<br>3. Contamination of canals.<br>4. Shortage of clean water for multiple uses.<br>5. Conversion of agricultural land for housing purpose.<br>6. Outdated mass transit services may create isolation, joblessness, loss of trade and business and increased fear of alternate transport modes. |

### 8.1.3 Issues

- Unplanned street network
- Absence of public transport
- Ribbon type commercial development in residential neighborhoods.
- Poor traffic management.
- Lack of opportunities for integrated transport provisions
- Lack of coordination between different transport operating agencies.
- Less provision of street furniture
- Non-aesthetic streetscape
- Haphazard on street parking reduces road capacity
- Poor maintenance of railway station
- Poor administration and management control

### 8.1.4 Policy Guidelines

- Promote compact development.
- Provision of Activity centers (support local business)
- Promote Opportunities in the form of wide roads available for mass transit system development
- Provision of Wider road space can be used to facilitate multiple transport activities by implementing road space design standards
- Adequate space should be available for street furniture installation
- Proper management can promote public transport services.
- After removal of encroachments adequate space available for traffic signs, lane markings and foot paths
- If properly administrated and space utilized, could promote smooth flow of traffic on nearby corridors.
- A new transport terminal for goods transport will facilitate timely supply of industrial goods.

### 8.1.5 Sindh Empowerment of 'Persons with Disabilities' Act, 2018 [42]

Keeping in view 'Persons with Disabilities' act, 2018 while planning, designing & executing any kind of infrastructure projects i.e. public places, markets, parks, educational institutions, health facilities, Roads Street and pathways centers and etc, it is now mandatory to apply Universal Design and Accessibility criteria for ease of access of differentially abled persons. Also during the planning & designing phase universal guidelines for differently abled friendly construction should adhered for e.g provision of ramps, specialized tiles (Tactile Paving) used for visually impaired personals, signage, street furniture, foot path steps, parking, mechanical access, railings, opening of doors & windows, toilet design, lighting and illumination and etc.

[42] For detail please refer; The Sindh Empowerment of 'Persons with Disabilities' Act, 2018 (https://depd.sindh.gov.pk/sindh-empowerment-of-persons-with-disabilities-act-2018)

Specifically planning & designing for the transport sector, universal access is the goal of enabling all citizens to reach every destination served by their public streets and pathway system. Universal access is not limited to access by persons using automobiles. Travel by bicycle, walking, or wheelchair to every destination is accommodated in order to achieve transportation equity, maximize independence, and improve community livability. Wherever possible, facilities are designed to allow safe travel by young, old, and disabled persons who may have diminished perceptual or ambulatory abilities. The universal design has following principles;

i. **Universal access to destination:**
All destinations served by the public road system shall be accessible by pedestrians and by drivers of all vehicles (including bicycles), except that vehicle operation may be restricted for reasons of excessive weight, noise or size, or extraordinary potential for damage to property or person

ii. **Equal Right of use:**
People's right to use that portion of a street designed for travel is not diminished by less weight, less size, or less average speed associated with their travel mode. Demand actuated tra-c signals must detect and serve a diversity of users including bicycle operators in the roadway and pedestrians using crosswalks.

iii. **Accessible surfaces:**
To the extent practicable, travel surfaces should accommodate travel on foot with minimal trip hazards and via common assistive devices such as wheelchairs. Roadway surfaces should be as clear as possible of hazards for narrow tires such as bicycle wheels.

iv. **Crossable Roadways:**
Crossing distances at non-signalized access locations must not exceed the distance that can be covered at walking speed before tra-c may arrive from beyond sight distance, or during reasonable gaps in roadway tra-c. Refuges provided to reduce crossing distances should be large enough to store assistive devices such as wheelchairs and strollers. Tra-c signal timing should provide adequate clearance intervals for safe crossing by pedestrians and slow vehicles.

It is suggested that necessary provision of the above recommendation may be mandated in the laws and regulations of SBEA and other agencies which drafting the buildings and highway regulations

### 8.1.6 Strategic Development Plan

The aim of strategic development plan is envisions providing equal and equitable sustainable transport system to all groups of society on affordable basis with minimal impacts on environment, also Provision of Citizen-centric, Sustainable and Growth Oriented Modern Transport system and rehabilitation of existing roads.

I. **Long Term Plan**
- Expansion of railway station
- Improve road design to make safer roads.

- Prevent encroachments on footpaths through litigation.
- Environmental Impact Assessment (EIA) should be mandatory for all transportation projects.
- Declaring private vehicle free zones, especially in peak hours, in CBD areas to reduce noise and air pollutions.
- Reduce traffic growth and congestion by achieving a mode shift.
- Enhance institutional efficiency to improve service delivery.
- Dualization of main arteries.
- Efficient operations and effective regulation of transport services.[21]
- Infrastructure development and up-gradation.[21]

**II. Short Term Plan:**

- Build a local / district / regional transportation system.
- Rehabilitation of existing roads should be scratched from its compaction level and reconstruct as per specification of design perimeters.
- Involvement of private sector in transportation infrastructure and services projects.[20]
- Rural infrastructure and trade related capacities for improved market access (Farm-to-market road concept).
- Proper mechanism should be addressed for maintaining sustainable traffic flow.

### 8.1.7 Priority Projects:

- **Repair & Rehabilitation and Improvement of Major, Minor and Streets**
  - **Project Justification**

    There is an unplanned & haphazard street network & absence of quality public transportation system in DHQ Town. Major roads & junctions i.e. National Highway N-120, Tando Adam Road, Chambar Road, Hyderabad Road, Nasarpur Road and Station Road, needs repair rehabilitation with Provision of allied missing facilities (Excluding Core area). However, the overall situation indicates narrow street width, poor pavement conditions, encroachments on footpaths and road sides, haphazard and illegal parking, open drains, lack of traffic signals and signs, etc. Space along with major roads is available for provision of missing facilities. The existing communication and transportation network of Tando Allahyar includes, Railway Station, Suzuki stands etc.
  - **Implementing Authority:** Works and Service Department government of Sindh, Local Government
  - **Estimated Cost:** 690.68 Million PKR Approx. (Short Term)

- **Installation of Traffic Signals and new Solar Street Lighting on Main Roads**
  - **Project Justification**

    Most of the Streets of Tando Allahyar are without street lights in over all the Municipal and all roads and are devoid of this facility. Street Lighting is essential for safe maneuvering of vehicles at night time and enhance sense of security of pedestrians on roads in dark hours. Given the energy crisis in the country, it is recommended to have solar street lights on streets and major roads.

- **Implementing Authority:** Tando Allahyar MC, Government of Sindh
- **Estimated Cost: 100 Million PKR Approx.**

| S. No. | Project Name | Estimated Cost In Millions | ADP | Non ADP | Status | |
|---|---|---|---|---|---|---|
| | | | | | Short Term | Long Term |
| **Roads and Communication Network** | | | | | | |
| **1** | Repair & Rehabilitation of Major & Minor Urban Roads (Excluding Core Urban Area) (Approx. 46 Kms @ rate of 4500 per running meter) 207.00 Million<br><br>Repair & Rehabilitation of Streets of Urban Roads (Excluding Core Urban Area) (Approx. 153.47 Kms @ rate of 2500 per running meter) 383.68.00 Million<br>• Pedestrian pathways<br>• Designated Parking Spaces<br>• Provision of Footpaths and Street Furniture | 690.68 | - | Non ADP | **Short Term** | - |
| **2** | Installation of Traffic Signals and new Solar Street Lighting on Main Roads | 100 | - | Non ADP | **Short Term** | - |

## Proposed Transportation Landuse for Tando Allahyar Town

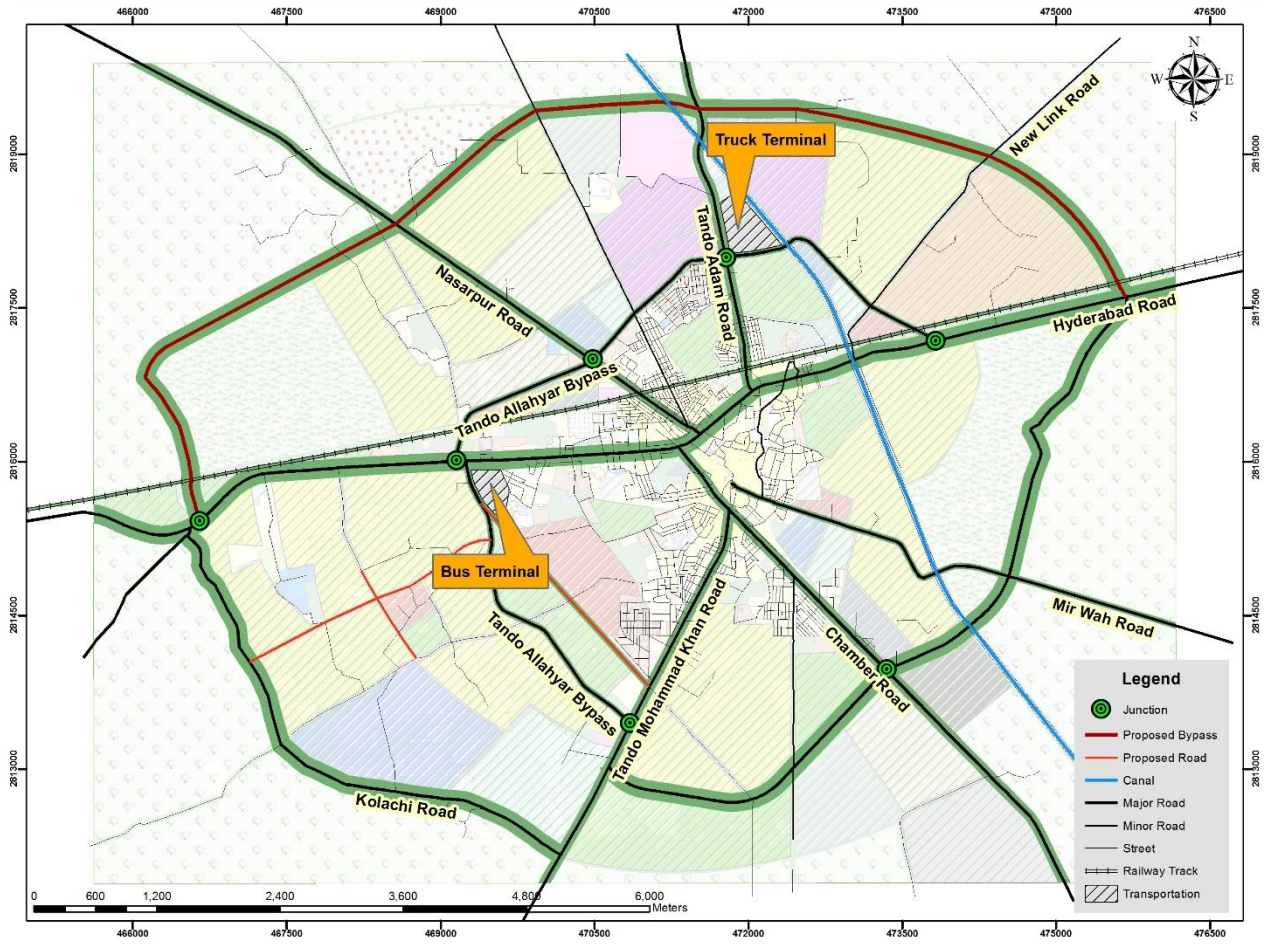



*Figure 8-5 : Future Transportation Landuse Proposal of Tando Allahyar Town*

### 8.1.8 Immediate Action Plan

- **Repair and Rehabilitation of Existing Roads**

Repair & Rehabilitation of main Hyderabad – Tando Allahyar road, Chamber Road and Main Nasarpur Road and Minor Roads includes; Tando Adam Road, Siddique Shaheed Road, Main Market Road Capital Cinema Road, Tando Allahyar - Tando Mohammad Khan Road and Mirwah Road. The improvement in road pavements with green medians, road markings, signals, pedestrian crossings, will be developed.




The main parameter for rehabilitation of existing roads is to draw a property line, which require very practical approach in such a way that no massive destruction will happen. In this regard community participation will be highly needed to take them on board and to make awareness that this realignment is for the betterment of their area. Thus, the community ownership will make the idea workable, other than this forceful action will not work in long run.

| TANDO ALLAHYAR - CORE TOWN AREA | | | | | | REHABILITATION OF ROADS | | |
|---|---|---|---|---|---|---|---|---|
| S. No | Area / Locality / Address Major Roads | Length (km) | Length (m) | Width (feet) | Width (m) | Area (sq.m) | Per sq.m cost (PKR) | Total Cost (PKR) |
| 1 | Dualization of Main Road - Hyderabad Road | **3.14** | **3140.23** | **40.00** | **12.20** | **38,295.45** | **4,500** | **172.33** |
| 2 | Dualization of Main Road - Chamber Road | **0.81** | **813.52** | **40.00** | **12.20** | **9,920.92** | **4,500** | **44.64** |
| 3 | Dualization of Main Road - Nasarpur Road | **0.63** | **630.23** | **40.00** | **12.20** | **7,685.68** | **4,500** | **34.59** |
| | | | | | | | **Total PKR Rs. Million (A).** | **251.56** |
| **Minor Roads** | | | | | | | | |
| 1 | Tando Adam Road | **0.27** | **265.65** | **40.00** | **12.20** | **3,239.58** | **2,500** | **8.10** |
| 2 | Siddique Shaheed Road | **0.39** | **389.84** | **40.00** | **12.20** | **4,754.18** | **2,500** | **11.89** |
| 3 | Main Market Road | **0.38** | **382.36** | **40.00** | **12.20** | **4,662.94** | **2,500** | **11.66** |
| 4 | Capital Cinema Road | **1.09** | **1090.67** | **40.00** | **12.20** | **13,300.82** | **2,500** | **33.25** |
| 5 | Tando Allahyar Road to main city road | **0.37** | **369.10** | **40.00** | **12.20** | **4,501.19** | **2,500** | **11.25** |
| 6 | Tando Allahyar - Tando Mohd Khan Road | **0.94** | **938.37** | **40.00** | **12.20** | **11,443.56** | **2,500** | **28.61** |
| 7 | Mirwah Road | **0.29** | **287.71** | **40.00** | **12.20** | **3,508.68** | **2,500** | **8.77** |
| | | | | | | | **Total PKR Rs. Million (B).** | **113.53** |
| **Minor Roads** | | | | | | | | |
| 1 | DHW town Streets in Tando Allahyar | **19.54** | **19,542** | **20** | **6.10** | **119,158.54** | **1,023** | **121.95** |
| | | | | | | | **Total PKR Rs. Million (C).** | **121.95** |
| | | | | | | | **(Rehabilitation of Roads) - Total PKR Rs. Million (A+B+C).** | **487.04** |

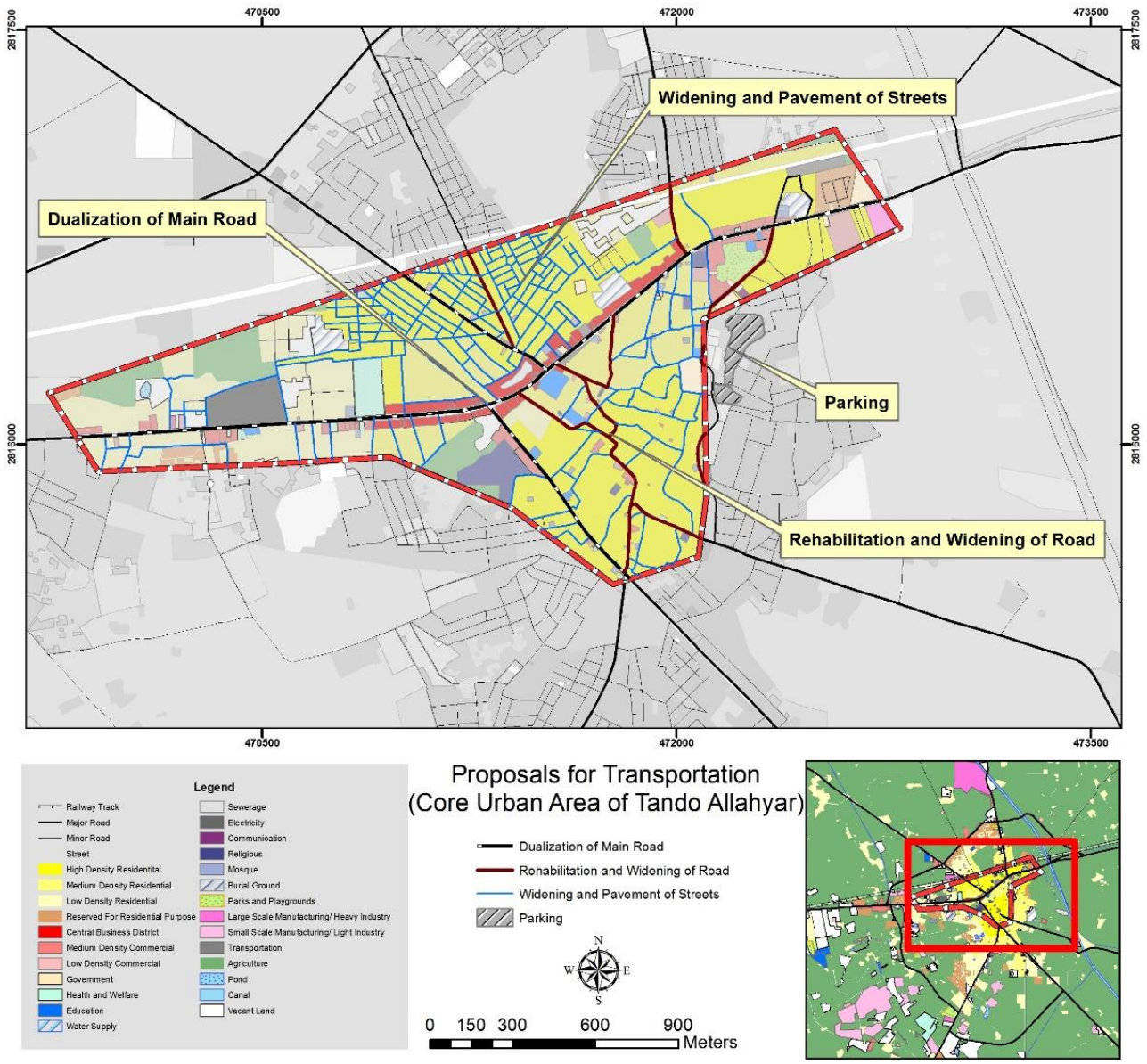



**Figure 8-6: Proposals for Transportation sector for Core Area**

- **Monuments**
  Repair & Rehabilitation of Existing monuments should take place for the beautification purposes.

- **Pedestrian Movement and Street Furniture**
  Pedestrian movement will be encouraged in core urban area by restoring footpaths on both sides of the roads in the city center. All existing encroachments on the footpaths should be removed to allow walkability in the city canter. Additionally some walkways should be designed in the CBD area by applying the pedestrianization policy there.

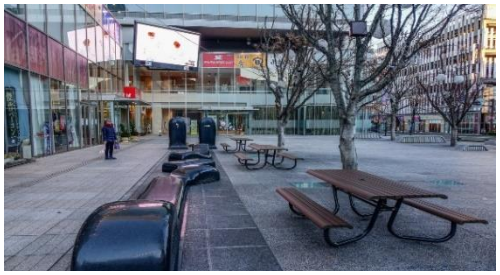


**Figure 8-7: Model of Footpath**

- **Provision of Footpaths and Street Furniture**

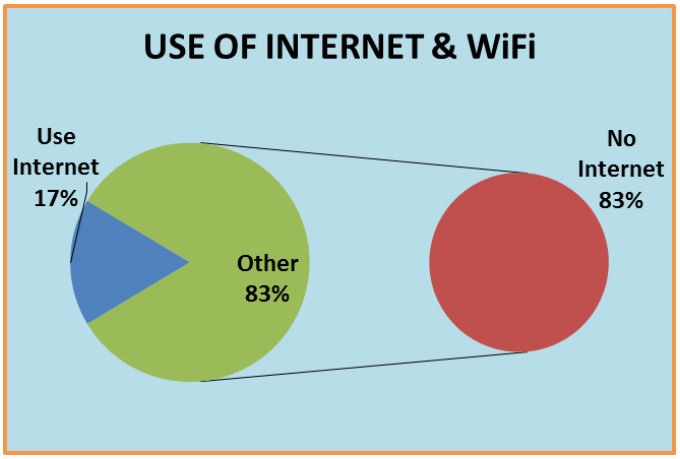
  Provision of street furniture in the core urban area also needs immediate attention. Street lights, benches, footpaths restoration, traffic signals, zebra crossings and bus stops with shades should be installed on immediate basis.



**Figure 8-8: Sample Street Furniture & Foot Path Monuments for Core Area**

## 8.2 Communication

### 8.2.1 Telephone, Mobile, Internet




The present survey revealed that in Tando Allahyar only 2 households have PTCL land line out of 754 respondents, which means that about total 288 households have PTCL land line telephone facility in the Tando Allahyar (MC) and remaining are using cell phones. The numbers of households using mobile cell phones are more than 83,877.

Regarding Internet and Wi-Fi the survey showed that only 100 household out of 760 are using the facility provided by PTCL and other service providers. This shows that only 288 households have PTCL land line and remaining 85,812 households are using mobile technology using different network providers.

As regards use of Internet and Wi-Fi we found that 11292 households are using internet provided by different service providers and vast number of households are not using this technology.

### 8.2.2 SWOT Analysis

| Information & Communication Technology | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Strong networks available for advanced technologies, e.g. internet, cellular networks, broadcasting, satellite communication.<br>2. All cellular service provider offer facilities and service station.<br>3. Town is covered by PTCL services, station and network. | 1. Lack of information sharing regarding agricultural activities, public health, veterinary, disaster forecasting etc.<br>2. The internet usage is limited to educated families. | 1. Media can play important role in economic development and prosperity.<br>2. Immediate disaster forecasting through disaster emergency response centre.<br>3. Marketing campaign support of development initiative. | 1. Negative cultural and ethical exposure to young minds (youth), if not regulated properly.<br>2. No check and balance of non-authorized/ non-biometric SIM's usage. |

### 8.2.3 Issues:

- Lack of information sharing regarding agricultural activities, public health, veterinary, disaster forecasting etc.
- Most of the areas lack the coverage of PTCL and Ufone network coverage.
- The internet usage is limited to educated families.
- Negative cultural and ethical exposure to young minds (youth), if not regulated properly.
- No check and balance of non-authorized/ non-biometric SIM's usage.

### 8.2.4 Proposals

- Media can play important role in economic development and prosperity.
- Promotes immediate disaster forecasting through disaster emergency response center.

**Importance of Communication Infrastructure in Agriculture Sector:**

Swift transportation facilities, farmer friendly marketing arrangements and, above all, a well-maintained Communication network are the basic requirements for an efficient and profitable agricultural sector. The District government needs to improve market and support service infrastructure including farm-to market Roads. This sector will need increased and sustained investments in communication infrastructure in rural areas.

## 8.3 Energy

### 8.3.1 Existing Situation

There is no power generation facility in Tando Allahyar (MC) vicinity. H.T Feeders from Hyderabad-I circle supplies electric power to Tando Allahyar. The power demand is not only for houses & business, but also for street lighting, industry and irrigation. The main industrial units are sugar mills, flour mills and rice mills. The major portion of electricity generated is being consumed by domestic sectors, followed by industries.

It is well recognized fact that energy plays a crucial role in enhancing socio-economic development. Population growth and rising standard of living have boosted the rate of electricity consumption to higher levels.

**Table 8-2 Electricity Demand in MWs**

| Year | Population | Average Domestic Power Per Capita (472 KWH) as per (WB) |
|---|---|---|
| 1998 | 85,812 | **Load MW** |
| 2017 | 156,562 | 8.443 |
| 2020 | 172,155 | 9.295 |
| 2025 | 201,669 | 10.879 |
| 2030 | 236,244 | 12.747 |
| 2035 | 276,746 | 14.936 |
| 2037 | 294,828 | 15.885 |

*Source: Consultant's Estimations*

The demand-supply gap is expected to narrow down. As per National Power Control Centre (NPCC), it will almost equate the supply demand with marginal shortfall of 13 MW only by June, 2018.

According to Growth Rate of 2.32% of Tando Allahyar (M.C) as per Census (1998-2017), the power requirement is calculated as under Table – Electricity Demand in MWs:

With the increase in number of housing units, agriculture and industrial activities, demand of electricity will increase.

### 8.3.2 Issues

- Shortage of electricity & power supply.
- Poor maintenance of electricity supply infrastructure.
- Power shortage due to non-payments of bills.
- Line losses and power theft.
- Outdated network in old town areas.
- Existing capacity of electricity supply is short to meet the growing demand of utility.
- No alternate source of electricity is available in the district.

### 8.3.3 SWOT Analysis

| Power Supply & Distribution | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threat** |
| 1. Almost whole urban area gets coverage of electricity.<br>2. Good recovery outcomes as business community in urban area want quality services.<br>3. The industrial sector demands supply of electricity.<br>4. There are good local potential for electricity generation. | 1. Shortage of electricity & power supply.<br>2. Poor maintenance of electricity supply infrastructure.<br>3. Power shortage due to non-payments of bills.<br>4. Line losses and power theft.<br>5. Outdated network in old town areas.<br>6. Existing capacity of electricity supply is short to meet the growing demand of utility.<br>7. No alternate source of electricity is available in the district. | 1. By increasing the capacity of grid station will minimize electricity shortage & maximize production<br>2. Opportunities available for alternative energy production through solar energy and wind power.<br>3. Renewal of outdated network to meet existing and future demand. | 1. Load shedding.<br>2. Threat to agriculture and industrial production and overall economy.<br>3. Crime rate.<br>4. Political will and policies at work<br>5. Licensing and legal issues.<br>6. Investment protection, law & order.<br>7. Electricity theft |

### 8.3.4 Strategic Development Plan

- HESCO has to improve its capacity of electricity generation, transmission and distribution system.
- Demand for gas and water supply will increase for which SSGC and concerned agencies will have to expand the capacity and facilities.
- By increasing the capacity of grid station will minimize electricity shortage & maximize production
- Opportunities available for alternative energy production through solar energy and wind power.
- Renewal of outdated network to meet existing and future demand.

**i. Long Term Development Plan**

- The effective development of low cost energy production systems can be used
- Success in achieving fuel efficiency, adopting new technologies and altering existing fuel-use
- Habits depends largely on women who are the primary users of fuel wood. They must be made aware of the long-term ramifications of adopting these innovations
- Addition of sub stations as per requirement
- Encourage energy efficient building construction

**ii. Short Term Plan:**

- Promote energy efficient appliances and devices
- Feasibility study for alternate energy sources (Solar, wind, biogas etc.)

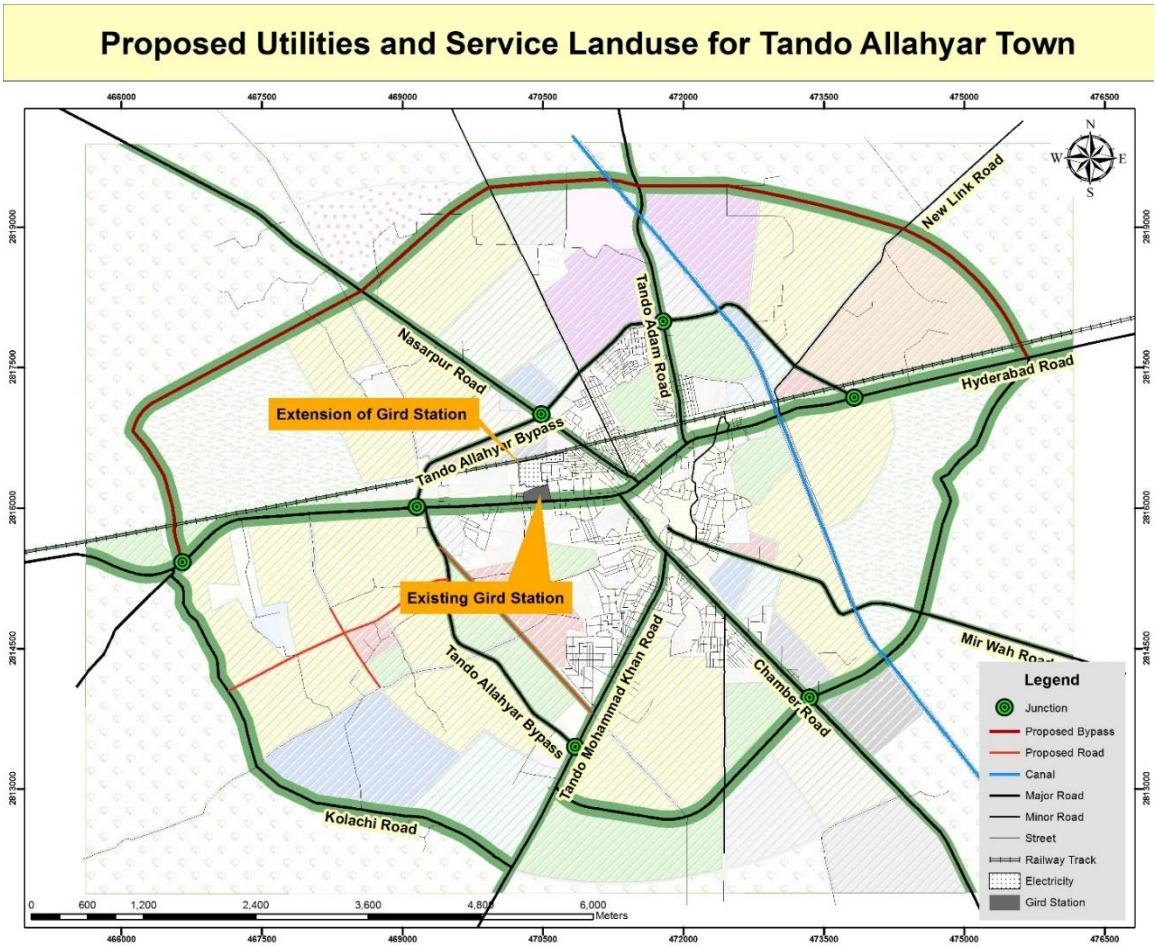



***Figure 8-9 : Future Power Services Proposal of Tando Allahyar Town***

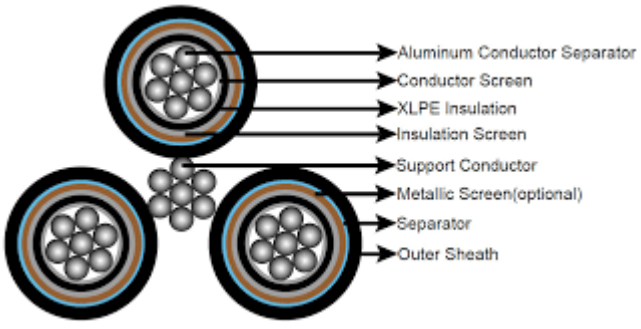
### 8.3.5 Immediate Action Plan

**Power Supply:**

ABC wires should be used in the core urban area to avoid short circuits and thefts. This will also increase the beauty of the core urban area.

**i. Arial Bundle Cable wires**

In present circumstances it is suggested that Arial Bundle Cable wires should be used to avoid short circuits and thefts issues. This will also increase the aesthetics and beauty of the core urban area.



### ii. Streetlights

It is proposed to installed streetlight in all over core urban area. It is suggested to use streetlights with LED panel and solar power battery support. This can save energy and light can be lit even during the load shedding hours, but need regular maintenance. Considering narrow street and road width, it is recommended to use wall mounted poles in narrow streets, while floor mounted poles on other roads.

- Up gradation of existing grid station
- Promote energy efficient appliances and devices




| Proposed wall mounted street lights | | | | |
|---|---|---|---|---|
| **S.No.** | **Name** | **Length (km)** | **Length (f)** | **Cost (PKR)** |
| 1 | Proposed wall mounted streets lights. | **20.00** | **65,617** | **1 6,404,200.00** |
| | | | **Total Cost (PKR). Million** | **16.40** |

**Note:**

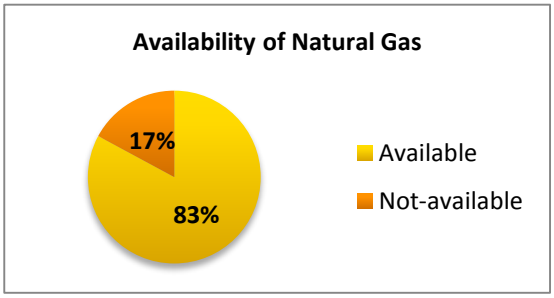
- Wall mounted street lights should be placed on distance of 20 feet apart.
- Each wall mounted street light cost (Rs. 5000/-).
- As per total length of streets for this proposal 3,280.00 No.s of street lights/wall mounted streets should be placed in core town area.
- Operation and maintenance is the 1st priority to ensure after installation of all equipment's and machinery and kept under strict control of TC office for proper usage of facilities.

## 8.4 Gas Supply

### 8.4.1 Existing Situation

765 house residents had responded to the questions asked on availability of Gas. As given in the Table below, 634 houses had the gas available to them, while the gas was not available to 131 houses. Therefore about 83% households have the gas supply by SSGC and 17% were using alternate source of fuel for their daily household needs.

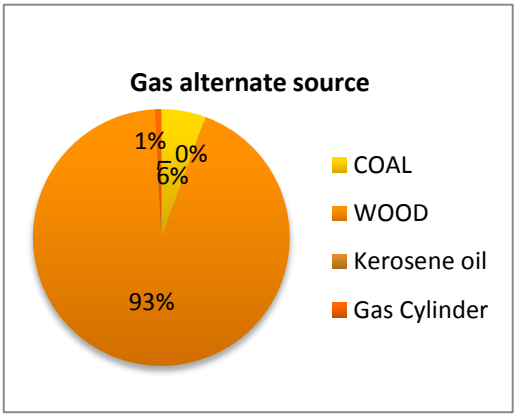
| Availability of Natural Gas | No. of Respondents | Percentage |
|---|---|---|
| **Available** | 634 | 83% |
| **Not-available** | 131 | 17% |
| **Total** | **765** | **100%** |




*Source: Consultant's Survey, July 2017*

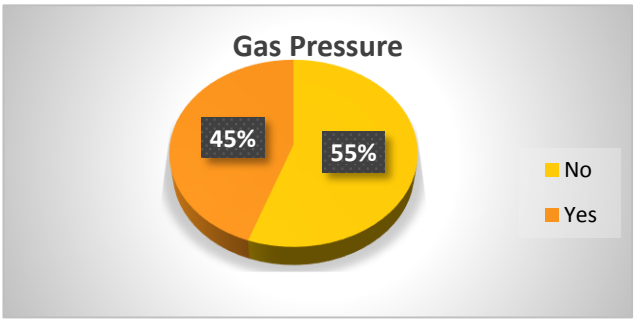
Households not having Natural Gas provided by SSGC are dependent of alternate sources. 125 out of 131 respondents not having gas availability are using following alternate resources.

| Alternate Source | No. Respondents | Percentage |
|---|---|---|
| **COAL** | 7 | 6% |
| **WOOD** | 117 | 94% |
| **Kerosene oil** | 0 | 0% |
| **Gas Cylinder** | 1 | 1% |
| **Total** | **125** | **100%** |

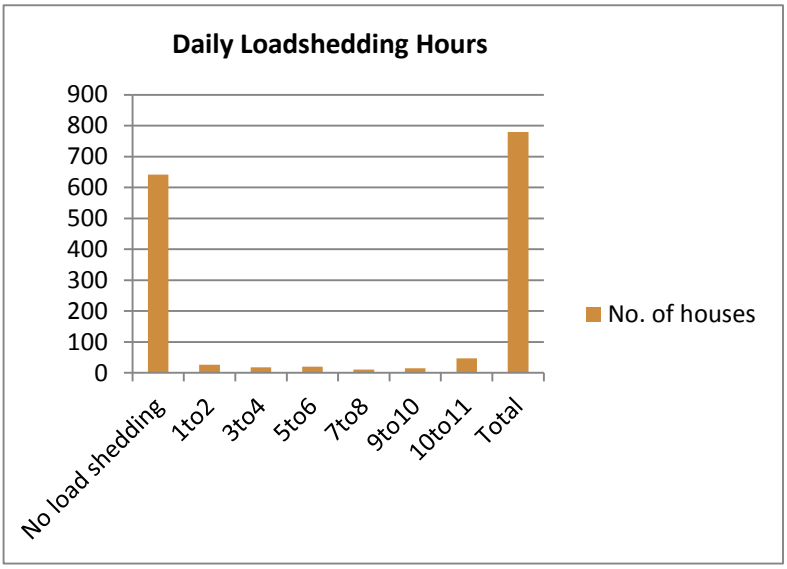



*Source: Consultant's Survey, July 2017*

The Fingure below shows the sufficiency of gas pressure as provided by 756 houses. Around 45% of the households suffer with low gas pressure whereas 55% of the households are satisfied with the Gas pressure.




Survey results also reveal that 82.5% of the households do not have gas load shedding. While only few of the household's complaints that 2-5 hours gas load shedding is being done in their area on daily basis. Following table depicts the overall results.




### 8.4.2 Strategic Development Plan

- Feasibility study for alternate resources available
- Measures to cater Load Shedding of both electricity and gas.
- Measure to appropriately priced the energy resources

# 9. ECONOMIC DEVELOPMENT PLAN

Economy of an area or town plays an important role for its sustainability and further growth. Tando Allahyar, being as Agriculture Hub consists of a single canal i.e. Naseer Canal, has economic opportunities and issues as well. The progress of economic activities in district depends upon facilitation to farmers by using modern techniques now and surely in the future. The district as a whole is well-known due to its characteristic of agriculture engine which serves all over Sindh by using market of Hyderabad, the regional Hub. It is situated on a main regional corridor which connects Umerkot, Mirpurkhas and Mithi with Hyderabad.

### i. Policy Guidelines for Overall Economic Development

- Creating a better quality of life for the citizens of the district by encouraging private sector to invest in the district.[43]
- Increase farmer's income.[44]
- Improving infrastructure and key services necessary for economic uplift.
- Providing un-interrupted power supply.

### ii. Inclusion of Poverty Reduction Strategy in Economic Development Plan

The poverty reduction strategy (PRS) is aimed to act as medium-term instrument to address the challenge of poverty in Sindh. One of the intervention of PRS has its foundation resting on poverty reduction at the household level, together with the introduction of an urban programme incorporating a model of urban economic clusters for SME-based enterprise development in small cities and towns, and a model of rural growth centres at meso level that would provide a catalytic effect to the PRS. It has the strength to become a keystone for investment planning in the province, while focusing on Economic Development strategies via PRS lens that will boost the employment opportunities as well as enterprise development in the province.

### iii. Strategic Plan for Overall Economic Development

- Modernize and revitalize the service sector.
- Implement proactive governance centered on accelerated and balanced economic growth.
- Develop Human resources through capacity building for employment opportunities.
- Facilitate social support and gender equality.
- Reinforce the local governance institutions.
- Modernize local / district / divisional administration.
- Decentralization of governance authorities.
- Involve community participation.
- Exploring and implementing PPP (Public Private Partnership) in all sectors.

[43] ADP 20017-18 Industries Punjab
[44] ADP 2017-2018 Agriculture Punjab

## 9.1 Agriculture

### 9.1.1 Existing Situation

In District Tando Allahyar there are six ginning factories and spillers. It is quite noted able that the climatic conditions of the District are so unique in the province that e-very crops even vegetables, fruits ripen one month earlier than the rest of the District. Also, both types of food/agriculture commodities namely organic & inorganic are provided. More ever there is no proper system of preservation of fruits vegetables in the District due to which economic losses became incredible to the farmers/growers

Tando Allahyar contributes significantly to the agriculture sector of Sindh because its climate is suitable for the production of various crops. There are two main crop seasons; "Kharif" and "Rabi" in Tando Allahyar District. The Kharif season starts from April-May and ends in October-November while the Rabi starts from November-December and ends in April-May. Crops that are cultivated in Tando Allahyar are sugarcane, rice, wheat, mango, rapeseed and mustard, cotton, jowar, maize, gram, and barley. Due to its soil and topography, Tando Allahyar is an ideal place for sugarcane cultivation, cotton and Mango farming.

#### I. Crop Production

During 2016-17 the production of Wheat was 105,762 M.Tons, Sugarcane 1,303,982 Bales and cotton 122,519 Bales. Yields of all crops is low comparing to the provincial/ national level. To address the property issue/ raising of income level wasteland available be granted to landless people for utilization. Raising Livestock, looking to water shortage and proper crop and irrigation water management. The crops, production field, and land utilization is given tables as under:

**Table 9-1: Statistics of Crop Production**

| Crop Production | | Crops Production Year2014-15 | | Crops Production Year2015-16 | | Crops Production Year2016-17 | |
|---|---|---|---|---|---|---|---|
| **S.No.** | **Crops** | **Area (Hectare)** | **Production (M. tons)** | **Area (Hectare)** | **Production (M. tons)** | **Area (Hectare)** | **Production (M. tons)** |
| 1 | **Rice** | 906 | 2,257 | - | - | - | - |
| 2 | **Wheat** | 32,241 | 113,324 | 32,188 | 1092,09 | 31,845 | 105,762 |
| 3 | **Sugar Cane (Bales)** | 20,779 | 1,068,017 | 20,053 | 1,228,914 | 20,613 | 1,303,982 |
| 4 | **Cotton (Bales)** | 23,829 | 143,093 | 22,841 | 132,735 | 22,589 | 122,519 |
| 5 | **Maize** | 279 | 264 | 268 | 249 | 229 | 217 |
| *Source: Development statistics of Sindh 2018* | | | | | | | |

#### II. Land Utilization

Total Reported area of District is about 173,000 hectares, out of this cultivated area is up to 116,000 hectares. Out of cultivable land deriving, cultivated up to 68,000 hectares leaving 70,000 hectares is Net area sown in 2016-17, where it was 71,000 in 2015-16. Wasteland was available to 26,000 hectares which remains the same in 2016-17, whereas, 31,000 hectares are not available for utilization. There was a Minor changing in land utilization occurs in district Tando Allahyar within one year as mentioned above the land utilization was decreased due to inadequate supply of irrigation water and high rates of fertilizers and pesticides.

**Table 9-2 Comparison Land Utilization**

| Sr. No | Type of Cultivated area | (Hectares) 2015-16 | (Hectares) 2016-17 |
|---|---|---|---|
| | | Geographical area | Geographical area |
| 1 | Cultivated area | 116,000 | 116,000 |
| 2 | Current Fallow | 45,000 | 45,000 |
| 3 | Net area sown | 71,000 | 70,000 |
| 4 | Cultivated Waste | 26,000 | 26,000 |
| 5 | Not available for cultivated | 31,000 | 31,000 |
| ***Source: Development Statistics of Sindh, 2018*** | | | |

### III. Irrigation Network

District Tando Allahyar has a well-established irrigation system. There is only a single canal in Tando Allahyar which is named as Naseer Canal which is the distributary canal of the Rohri canal.

Agriculture, in Tando Allahyar, mainly depends upon canal irrigation. However, other modes of land irrigation like river water and tube wells are also used. 85 Dehs (99% of all) are irrigated with the help of canals. Tubewell irrigation is also common in 47% of the total rural Dehs irrigation. (Source: Development Profile of Tando Allahyar)

In the year 2015-16, 51,677 hectares were irrigated out of 70,725 hectares whereas, in the year 2016-17, 51,687 hectares were irrigated out of 70,420 hectares. The table below gives information regarding irrigation in the district[45].

**Table 9-3 Irrigation by Year Wise**

| District | 2015-16 | | | 2016-17 | | |
|---|---|---|---|---|---|---|
| | Total (Hectares) | Irrigated (Hectares) | Un-Irrigated (Hectares) | Total (Hectares) | Irrigated (Hectares) | Un-Irrigated (Hectares) |
| **Tando Allahyar** | 70,725 | 51,677 | 19,048 | 70,420 | 51,687 | 18,733 |
| *Source: Development statistics of Sindh, 2018* | | | | | | |

[45] Development Statistics of Sindh 2018

### 9.1.2 Issues

- Sugar Industry crisis
- High price of Inputs (Fertilizers Material, Pesticides and Quality seed)
- Low price of crop production
- Farm to market road
- Lack of agriculture credit facilities
- Agriculture research centres
- Water logging and salinity
- Tube well installation facilities
- High rate of diesel
- Shortage of irrigation water

### 9.1.3 SWOT Analysis

| Agriculture | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Agriculture based economy.<br>2. Strong network of distribution of agro based products.<br>3. Mangoes and bananas are the most famous plantation of Tando Allahyar.<br>4. Presence of basic infrastructure (development of new sabzi mandi along with cold storage facility ) | 1. Shortage of technical and home based industry.<br>2. Low demand of home grown food products.<br>3. Less revenue generation by local government. | 1. Job opportunity for rural population.<br>2. Healthy population<br>3. Strong transport system<br>4. Outside investors show interest in agriculture sector. | 1. Shortage of agro based products.<br>2. High land prices. |
| **Irrigation** | | | |
| 1. The District consists of flat and fertile lands.<br>2. Efficient canal system, which ensures agriculture productivity. | 1. Negligence regarding timely desiltation<br>2. Weak banks of irrigation canals | 1. Support agricultural activities<br>2. Opportunities for enhancement of agriculture through tube well irrigation | 1. Flooding / over flow of water<br>2. Water contamination |

### 9.1.4 Strategic Development Plan

- Modernize and revitalize agriculture.
- Increase the supply and quality of Agricultural Crops
- Sufficient market infrastructure to ensure optimal value addition
- Agricultural technology development, dissemination and adoption.
- Use of modern techniques for cultivation by choosing healthy seeds and fertilizers for increasing yield per acre.
- Agricultural practices can be changed in accordance with weather condition for maximum production.
- As mangoes in the district are famous so they can be used to increase the economy of the region through their export to other regions and countries as well.
- Establishment of processing plants/units for mango, banana and vegetable crop.
- Capacity building by dissemination of information among the farming community through demonstration plots, farmers field days and village level training program.

#### I. Long Term Plan

- Job opportunity should be for rural population.
- Strong transport system should be provided
- Incentives should be taken so that outside investors show interest in agriculture sector.
- Enhancing crop productivity through adoption of new technologies
- Increase the supply and quality of agricultural crops
- Provision of warehouses for storage of agricultural products

#### II. Short Term Plan

- Modernize and revitalize agriculture.
- Improved food production to reduce hunger including emergencies and disasters that require agricultural support.
- Increase the supply and quality of agricultural crops
- Provision of warehouses for storage of agricultural products
- Use of modern techniques for cultivation by choosing healthy seeds and fertilizers for increasing yield per acre.
- Enhancement of the storage capacity.
- Provision of warehouses, food gowdowns for storage of agricultural products.
- Construction of covered gowdown.

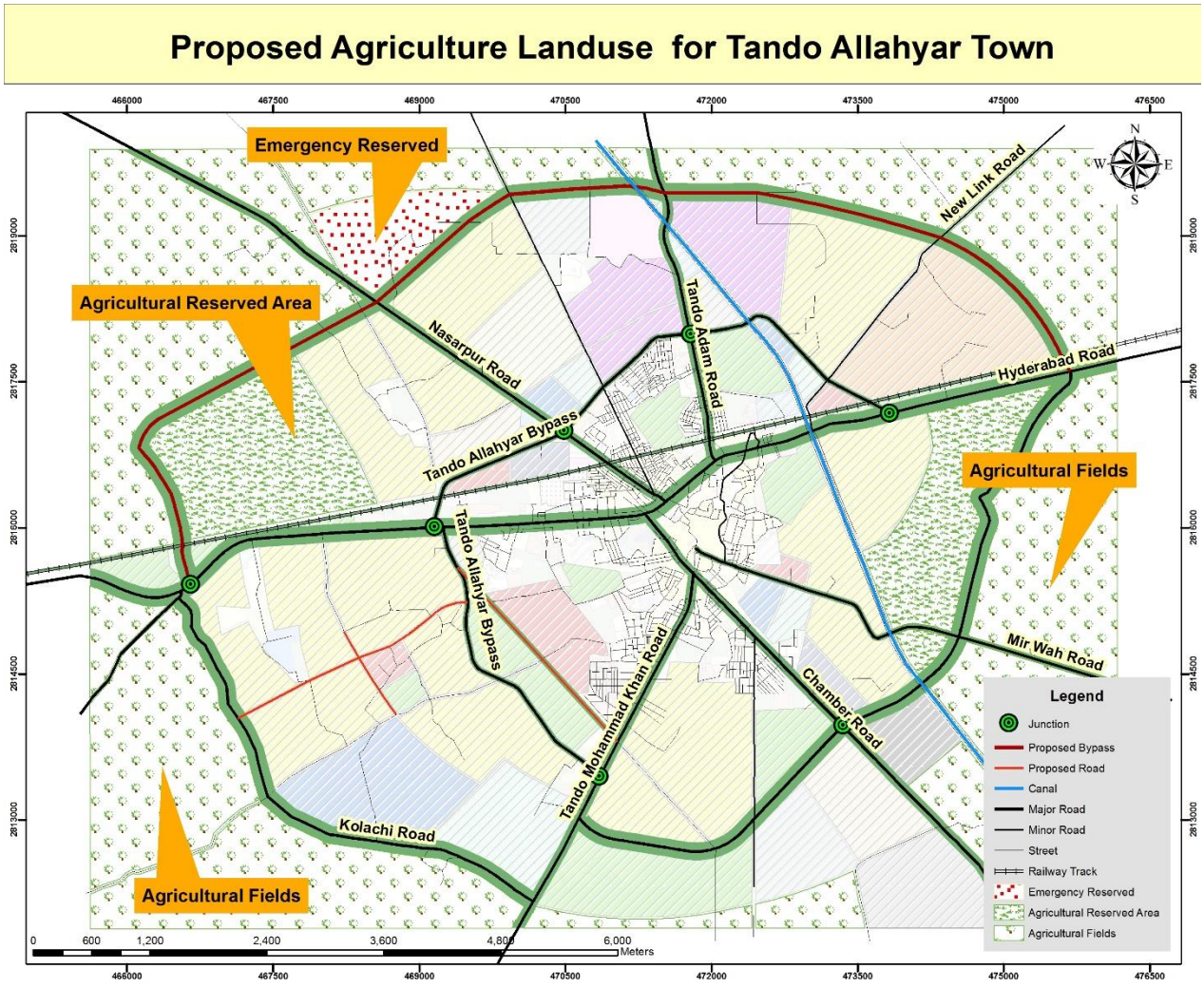



**Figure 9-1 : Future Agricultural Proposal of Tando Allahyar Town**

## 9.2 Livestock

### 9.2.1 Existing Situation

Good breed of buffalos and cows are found in the district. Sheep, goats, camels, horses, asses and mules are some of the other main livestock of the district. The number of large animals exceeds the number of smaller animals, showing people's preferences for keeping cattle rather than goats or sheep. Livestock in the district suffers in particular from shortage of high quality feed. There are 20 registered livestock farms in district Tando Allahyar.

- **Local skills and vet services available**
- **Good breed of buffalos and cows are found in the district.**
- **Mechanism for milk collection available**
- **Favorable environment is available for livestock growth (Pasture) and poultry farming in surroundings of city**
- **Number of Livestock**

A good breed of buffalos and cows are found in the district. Sheep, goats, camels, horses, asses, and mules are some of the other main livestock of the district. The number of large animals exceeds the number of smaller animals, showing people's preferences for keeping cattle rather than goats or sheep. Livestock in the district suffers in particular from the shortage of high-quality feed.

**Table 9-4: Number of Livestock**

| Sr. No. | Livestock by Category | Total Livestock Population of District |
|---|---|---|
| 1 | **Cattle** | 58,000 |
| 2 | **Buffalos** | 139,000 |
| 3 | **Sheep** | 17,000 |
| 4 | **Goats** | 213,000 |
| 5 | **Camels** | 1,000 |
| 6 | **Asses** | 12,000 |
| 7 | **Poultry** | 239,000 |

*Source: Development statistics of Sindh, 2018*

**Veterinary Service**

The livestock is serving by three veterinary Hospitals and seven veterinary centers, four dispensaries, 19 sanctioned Doctors, 24 paramedics, and also 24 supporting staff. There are a good number and a large variety of livestock in the district.

**Table 9-5: Veterinary Service**

| Sr. No | Items | Numbers |
|---|---|---|
| 1 | Veterinary Hospital | 03 |
| 2 | Veterinary Centers | 07 |
| 3 | Veterinary Dispensaries | 04 |
| 4 | Veterinary Doctors | 19 |
| 5 | Veterinary paramedics | 24 |
| 6 | Supporting Staff | 24 |
| 7 | Animal Treated | |
| **7a** | Vaccinated | 191,235 |
| **7b** | Treated | 16,231 |
| **7c** | Castrated | 59 |

*Source: Development Statistics of Sindh 2018*

The name of veterinary services in the district are as follows:[46]

1. Veterinary Center Sanjar Chang
2. Veterinary Center Jan M. Deshak
3. Veterinary Center Sadiq Memon
4. Veterinary Center Missan
5. Veterinary Center Began Jarwar
6. Veterinary Center Mir Munawar Ali
7. Veterinary Center Jalal Mori
8. Field A.I Center Bukera Sharif
9. Field A.I Center Gajelo Sharif
10. A.H.C Chambar
11. A.H.C Piaro Lund

### 9.2.2 Issues:

- Landlessness and smallholding prevents the farmer to raise livestock on a commercial basis mainly subsistence farming
- Limited knowledge and facilities
- Almost for every farmer, livestock farming is a secondary activity so treated as a secondary source.

[46] Retrieved from http://www.livestocksindh.gov.pk/tando-allahyar.php

- Reduced areas for natural grazing and feed production in the face of increasing urbanization and food security requirements
- Climate change and environment degradation

### 9.2.3 SWOT Analysis

| Livestock & Fisheries | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Local skills and vet services available<br>2. Good breed of buffalos and cows are found in the district.<br>3. Mechanism for milk collection available<br>4. Favorable environment is available for livestock growth (Pasture) and poultry farming in surroundings of city. | 1. Large scale breading has not developed<br>2. Lack of facilities to industrialize livestock based products.<br>3. Livestock in the district suffers in particular from shortage of high quality feed. | 1. Cooperative dairy farming and in-land fisheries has sufficient scope<br>2. Large pasture land and labour force available for livestock growth<br>3. Livestock based products can enhance economic activities if produced through appropriate industries. | 1. Theft and security issues<br>2. Losses due to Disasters (floods and epidemics). |

### 9.2.4 Need Assessment

Improvement in Cattle Farms and Veterinary services would be needed to maintain the sustainable growth by Livestock Department along with private sector. Livestock in the district suffers in particular from shortage of high quality feed.

### 9.2.5 Strategic Development Plan

- Improving the production performance of livestock in District through manipulation of different minerals and feed supplements.
- Enhancement of Livestock Production and Productivity through strategic deworming and vaccination.
- Establishment of model livestock farms linked with improved supply chain and value addition.
- Establishing new cattle & dairy farms that lead to increase in number of cattle's and quantity of milk.
- Provision of Veterinary Services.
- Cooperative dairy farming and in-land fisheries has sufficient scope
- Large pasture land and labor force available for livestock growth
- Livestock based products can enhance economic activities if produced through appropriate industries.

## Proposed Livestock Landuse for Tando Allahyar Town

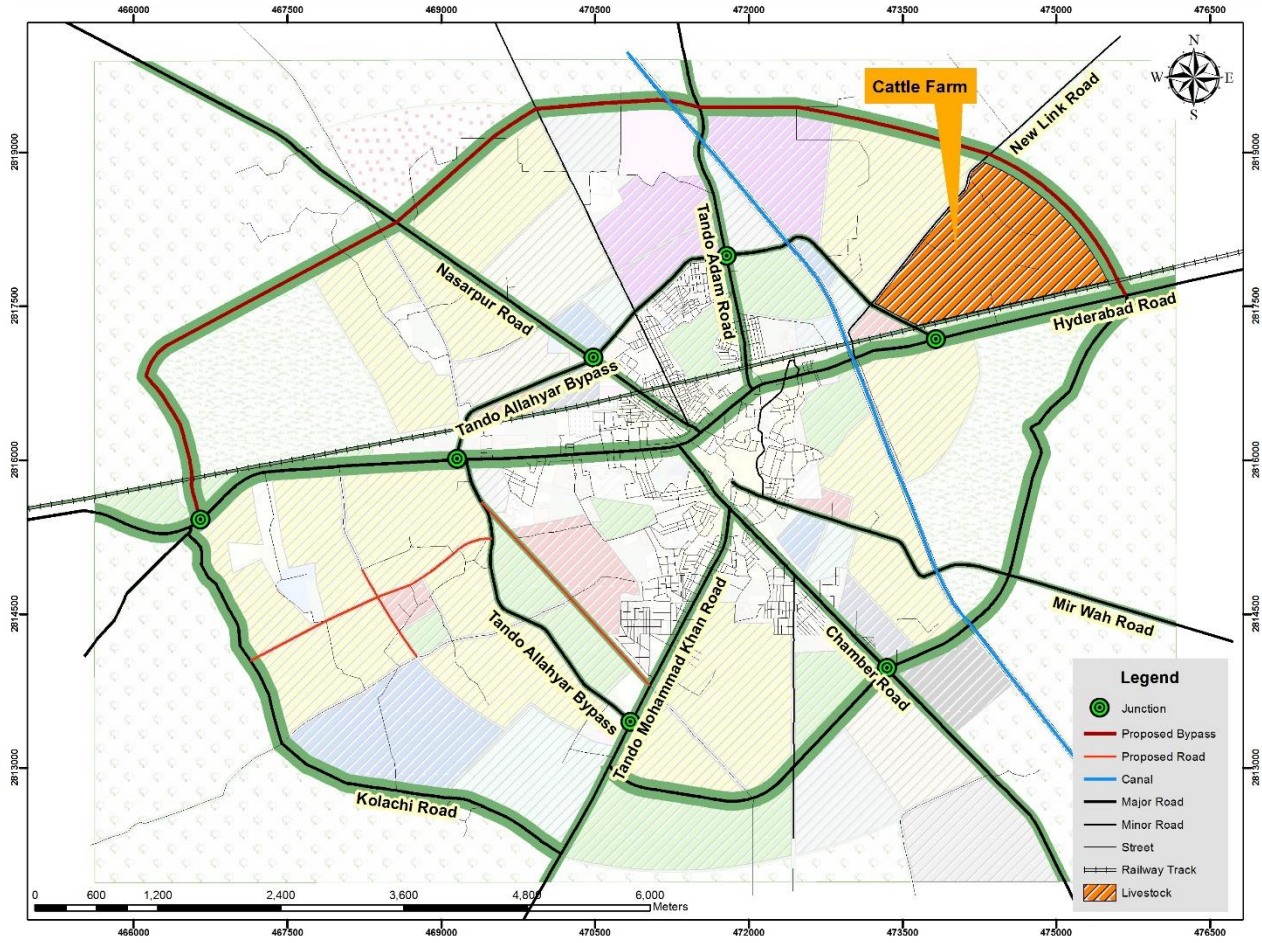



*Figure 9-2 : Future Livestock Landuse Proposal of Tando Allahyar Town*

## 9.3 Fisheries

### 9.3.1 Existing Situation

According to secondary data given by the fisheries department of Tando Allahyar, there is no governmental fish farm in district Tando Allahyar and no area is associated with the fisheries department. Also, no area is pre-identified by the Fisheries Department for used. There are 11 private fish production farms in Tando Allahyar district.

| Fish farms & Production | | |
|---|---|---|
| 1 | Number of Private Fish Farms | 11 |
| 2 | Number of Boats | 2 |
| 3 | Number of Fishermen | 43 |
| 4 | Area under Fish Farming Public and Private | 398 acres |
| 5 | Annual Fish Production | 365 Tons |
| **Source:** Fisheries Department Tando Allahyar 2017 | | |

### 9.3.2 Need Assessment

There is need to develop and implement a broad-based fisheries policy which is required for accelerated development of the fisheries sector. Government of Sindh has to take measures to modernize the fisheries sector including establishment of farms on district level to promote fish farming.

### 9.3.3 Strategic Development Plan

- Lease of fishing rights, conservation, management and promotion of fisheries
- Training through open training schools
- Local publicity and awareness
- Enforcement of fisheries enactment in their respective domain
- Fish seed stock replenishment in natural water bodies in their respective domain
- Aquaculture development activities through modern techniques
- To acquire land for fish production in District

### 9.3.4 Economic Development Plan

### Recommendations for Livestock & Fisheries

It is expected that sustainable growth of livestock will be maintained as per main objectives of Livestock & Fisheries Department along with the participation of private sector. Hence there is possibility to:

- Establish livestock and dairy farms to meet the increasing requirement of meat and milk. Similarly new fish farms and poultry farms in the districts need to be established to generate production and income of the people engaged in this business.

- Moreover, there is need to develop and implement a broad-based fisheries policy which is required for accelerated development of the fisheries sector. Government of Sindh has to take measures to modernize the fisheries sector including establishment of farms on district level to promote fish farming under PPP mode.

## 9.4 Industries

### 9.4.1 Existing Situation

The major industry in Tando Allahyar District is a sugar mill i.e. Mehran Sugar Mill, whereas medium size industries consist of flour mills and cotton ginning factories. There are five cotton ginning factories in Tando Allahyar i.e A One Cotton Ginning Factory, Abbas Nizam Cotton Mills, Amir Cotton Mills, Bilal Cotton Mills, and Sultan Abad Cotton Mills. The most famous are Mehran Sugar Mill with capacity of 4,000 M.Tones/day, A One cotton Ginning Factory with 10,703 capacity and Almas Roller Flour Mill with a capacity of 125 tons/day. These factories plays a very important role in the economy of the district.

### 9.4.2 Types of Industries

Tando Allahyar is primarily an agro-based industrial district. Its industrial base dependent on agriculture production of the district, which provide industries their raw materials. Mainly there are sugar mills, flour mills, ice factories and cotton ginning factories are abundant in the district and plays a very important role in the economy of the district. The following is the list of industries present in Tando Allahyar Taluka, out of these mostly are in the town:

**Table 9-6: Current Industries in Tando Allahyar**

| Industry | Units |
|---|---|
| **Sugar Mills**<br>Mehran Sugar Mills | 01 |
| **Flour Mills**<br>i. Tando Allahyar Roller Flour Mill (Almas)<br>ii. Bachani Roller Flour Mill | 02 |
| **Ice Factories**<br>iii. Raise Jaweed Ice Factory<br>iv. Zubairi Ice Factory<br>v. Jawaid Juman Ice Factory<br>vi. Jule Lal Ice Factory | 04 |
| **Cotton Ginning Mills**<br>i. A-One Cotton Ginning Factory<br>ii. Abbas Nizam Cotton Mills<br>iii. Amir Cotton Mills<br>iv. Bilal Cotton Mills<br>v. Sultan Abad Cotton Mills<br>vi. Abadgar Cotton Industry | 06 |
| **Cottage Industries**<br>Artisan Colony Nasarpur | 01 |

### 9.4.3 Artisan Colony at Nasarpur

Although there is no industrial estate in the whole district of Tando Allahyar. However, there is an Artisan Colony at Nasarpur, another town of Tando Allahyar Taluka. It is established in 1990 by Sindh Small Industries Corporation on three acres of land in Nasarpur. It comprises of ten workshops of 300 square feet area, mainly for pottery and handlooms.

Currently it has three Kashi Kari (Masonry) Centres named Al Habib Kashi Centre, Sammer Kashi Centre and Sindh Kashi Centre. This shows that the Kashigers have taken special efforts to keep the Kashi culture alive till today. There is also a factory of Kashi Kari called by name of Muhammad Ayoub Kashiger. Galeecha sazi (Carpet work) is also one of the oldest industry in Nasarpur working under Sindh Small Industries Corporation while there are couple of individuals and domestic partners too. Ceramic Centre is also one of the leading revenue generating industry. A small Ghirano factory is also an oldest industry in Naserpur, it produces cotton and silk khes, lungi, mooshi, garbi, and clothes.

### 9.4.4 SWOT Analysis

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| **Industrial** | | | |
| 1. Agro-based district and the industrial base in this district is dependent on the agriculture.<br>2. Major industry in Tando Allahyar District is a sugar mill i.e. Mehran Sugar Mill, whereas medium size industries consist on flour mills and cotton ginning factories. | 1. Less job opportunities for other sectors.<br>2. Limited industrial profile.<br>3. Less job employment in agriculture sector. | 1. Job employment.<br>2. Based on the success story of present industries, more industries can be installed in future.<br>3. If products produced by these industries are in good quality then this will enhance the industrial profile of the district at regional level as well as at national level. | 1. Isolated economy.<br>2. Uneducated social group.<br>3. More emphasis of crop producers on sugar cane production.<br>4. Air pollution<br>5. Water contamination to river Indus resources. |

### 9.4.5 Strategic Development Plan

**i. Long Term Plan**

- Sufficient market infrastructure to ensure optimal value addition
- Development of Industrial Estates / Apparel Park / Special Economic Zone in District
- Heritage saving through empowerment of artisans for development of handicrafts
- Paradigm shift from industrial agriculture to diversified agro ecological Systems
- Establishment of new industrial estates/Zone
- Provision of infrastructure for establishment of new industries

### ii. Short Term Plan

- Support industrial development and
- Enhance cottage industry to boost local economy
- Increase Job employment opportunities.
- Modernize and revitalize the service sector
- Provision of vocational training and employable skills to the unemployed youth of the district
- Construction / increase storage capacities of cold storage / warehouses for agro products
- Customized lending and micro financing to small industries

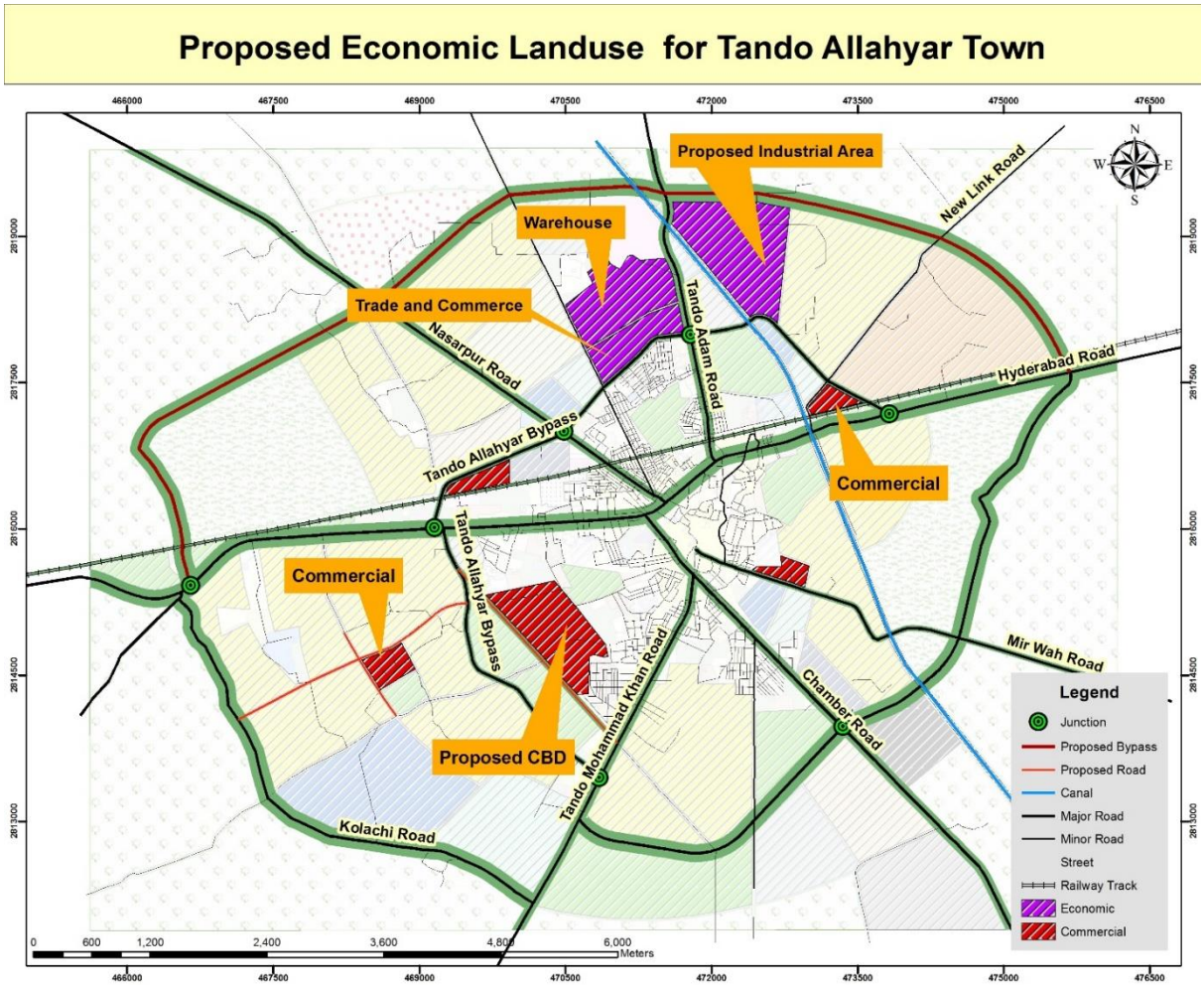



**Figure 9-3 : Future Indstrial Exension Proposals of Tando Allayar Town Map**

### 9.4.6 Recommendations for Economic Development Plan

#### i. Industrial Estates

There is no specified industrial estate in the district. However it is suggested one small industrial estate may be established under Small Industries Corporation, GoS. The object is to establish planned industrial areas where industrialists could have all the facilities such as land, road, railway, water supply, electricity, gas, telephone, Godown, sanitation, drainage, labour colonies and other necessary public amenities.

#### ii. Technical and Vocational Training

Training and Vocational training is a continuous process to train unskilled manpower to become active skilled workers for the participation in development of local economy. At present TAY has 4 training institutes and schools set up by STEVTA. Tando Allahyar district has a potential for establishing Cottage Industry. With the increase in population there is dare need to groom women folk for playing part in cottage textiles through **Technical and Vocational Training Centers** to meet the future demand. Therefore, additional training center are required in TAY.

#### iii. Recommendations for Industrial Sector

On the basis of projected increase in crop production up to 2037 and present industrial base, there is potential for enhancing the capacity utilization of present units and establishing new industrial units with following limitations:

- Addition in industrial units suggested may vary as it is dependent upon the production capacity of each unit.
- The area of industrial estate may need extension with necessary facilities for encouraging the investors to establish new units
- Training should be provided to local workers in relevancy industries and women working force to establish cottage industry.
- Incentives to private investors for establishment of new industrial units and enhance the production capacity of present industry. Sindh Investment Board and Sindh Small Industries Corporation have vital role to play.
- The increase in industrial growth will obviously contribute towards better economy of the districts with increase in per capita income, reduction in un-employment rate and poverty alleviation.

## 9.5 Trade and Commerce

### 9.5.1 Existing Situation

Tando Allahyar has main CBD between the Chambar Road and Cinema Road. It includes the following:

- Availability of financial institutes, Chamber of Commerce and other trading institutes in the Town (lots of banks namely: Tameer Microfinance Bank, Soneri Bank, JS Bank, NB Bank, Habib Bank, Meezan Bank, Summit Bank, Dubai Islamic Bank etc.)
- The district as a whole is well-known due to its characteristic of agriculture engine which serves all over Sindh by using market of Hyderabad Division, the regional trading Hub.
- Strong local retail (Tahiri Shopping Centre, Captain Shopping Mall, Usama Zulfiqar Patoli Mall, Mia Manzoor market, Hafiz supermarket etc.)
- Communication and Technology business is being carrying out (Mobile Centres)

The core town area is the oldest and the most congested part of the Tando Allahyar town. It is facing lot of problems i.e. unavailability of footpaths, outdated sewerage system, encroachments, illegal rikshaw stands etc. The main CBD is thriving trade and retail businesses centre with narrow streets and high density housing in low rise buildings occupied by population belonging to various income groups. Mostly are old single-story shops present in the form of bazaars which includes traders, wholesale markets, shopping centre, mobile shops, banks, electronic Shops, hotel, restaurants, grocery stores, etc.

Tando Allahyar is considered as lucky district as compare to other districts, due to availability of planned fruit and vegetable market near town area. It is quite embarrassing that, after construction of market it is not functional till to date. As towns expand, the expansions of wholesale markets to the fringes become imperative.

### 9.5.2 SWOT Analysis

| Trade & Commerce | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. The district as a whole is well-known due to its characteristic of agriculture engine which serves all over Sindh by using market of Hyderabad, the regional trading Hub.<br>2. Large number of local skilled artisans available.<br>3. Strong local retail. | 1. The failure of PPP trouble for locals and government.<br>2. Demise of local agriculture market.<br>3. Un-planned local business activities.<br>4. Not use of vegetable market | 1. More opportunities for public private partnership.<br>2. Support to local economy.<br>3. Home grown handicrafts can be promoted through proper exposure to export market.<br>4. Large number of business interest groups. | 1. Security issues (which lead a large number of agriculturists and business persons to migrating from the city).<br>2. Low subsidies provided by local and provincial government. |

### 9.5.3 Long Term Plan

- Provision of Fruit and vegetable market
- Specialized Wholesales market
- Construction of Building for service industry
- Provision of Cold spaces and warehouses

### 9.5.4 Priority Projects

Revitalization of Fruit & Vegetable Market (Bypass Roads – Hyderabad-Mirpurkhas N-120)

- **Project Scope & Justification**

Tando Allahyar is considered as lucky district as compare to other districts, due to availability of planned fruit and vegetable market near town area. It is quite embarrassing that, after construction of market it is not functional till to date.

As towns expand, the expansions of wholesale markets to the fringes become imperative. Ordinary retail shops for vegetables and fruits are located on the main roads & causes traffic congestion & garbage issues. Provision of revitalization of existing fruits & vegetables market shall resolve issues i.e. congestions & road side waste generation etc. In order for this major operation to be successful, it is necessary to provide good level of access and infrastructure in the reception area. Close linkages with bus and truck stands must be ensured.

Existing fruit and vegetable market has an area of 6 acres approximately. This area is not includes in SDP's trade & commerce zone. This planned market shall provide an easy access and the existing Commercial area shall not face traffic congestion and other related problems.

Revitalization of Fruit and Vegetable Market at Tando Allahyar with allied facilities shall attract entrepreneur to expand their investment and will also improve the urban environment. In the Proposed Master Plan approximately 237 acres of land along Tando Allahyar Bypass is proposed for Economic Zone; including 82 acres for Trade & Commerce and 155 acres for Warehouses.

These proposal are in consideration of new fruit and vegetable market comprises of six acres of land, which is not fully functional at present. Thus, in order to utilize this new facility, it is suggested to revitalize it for the development of trade and commerce activities on priority bases. This will be comprises of fruit and vegetable market, whole sale market, slaughter house and godowns. This planned market shall provide an easy access and the existing commercial area shall not face traffic congestion and other related problems. It will also include general shopping area and offices will be reserved for fruit and vegetable market on priority basis. The remaining area of trade & commerce is reserved for future need to expand facilitates and to add new market requirements. Whereas, warehouse area will be developed in future for specialized type of warehouse storage facilities as per upcoming demand of market.

- **Project Benefits**

  It will give ease to the local population to earn their living through it and will increase the revenue generation and employment. It will also reduce the traffic congestion which is the major issue of town due to existing markets in the main core city area.

- **Implementing Authority –** Tando Allahyar Municipal Committee and Private Investors.

- **Estimated Cost: 6**5.34.00 Million approx.

| Project Name | Sector | Short Term | Area in Acres | Preliminary Cost in million | Justification |
|---|---|---|---|---|---|
| Revitalization of Existing Fruit and Vegetable Market | *Economic Development* (Trade & Commerce) | Short Term | 6 acre | 65.34 | Tando Allahyar is considered as lucky district as compare to other districts, due to availability of planned fruit and vegetable market near town area. It is quite embarrassing that, after construction of market it is not functional till to date.<br><br>- Project Area 6 acre - 261,360 sft considered 50% as Built up Area at the rate of 500/- PKR per sft Repair and Rehabilitation cost. |

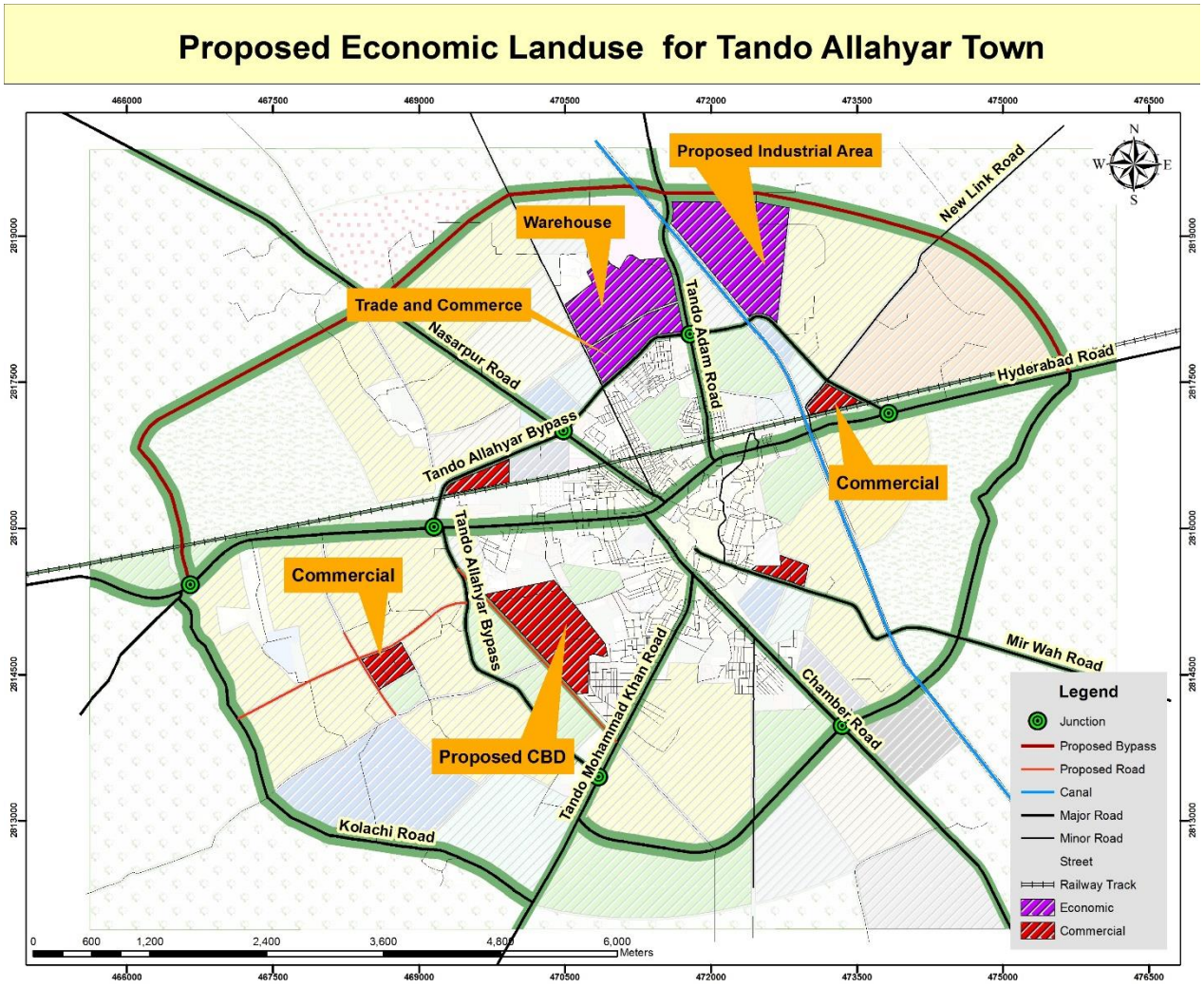



**Figure 9-4 : Future Indstrial Exension Proposals of Tando Allayar Town Map**

### 9.5.5 Immediate Action Plan for Core Urban Area

The core town area is the oldest and the most congested part of the Tando Allahyar town. Which is facing lot of problems i.e. unavailability of footpaths, outdated sewerage system, encroachments, illegal rikshaw stands etc. main CBD is thriving trade and retail businesses centre with narrow streets and high density housing in low rise buildings occupied by population belonging to various income groups. The proposed projects for core urban area of Tando Allahyar consists of; Removal of encroachments from town center and bazaars, created by the shopkeepers and hawkers; Rehabilitation & Beautification of main Bazar area i.e. Chambar Road and Cinema Road.

- **Trade and Commerce (Modernization of Commercial Activity in the Core Urban Area)**

  Tando Allahyar has main CBD between the Chambar Road and Cinema Road. It includes traders, wholesale markets, shopping centre, mobile shops, banks, Electronic Shops, hotel, restaurants, grocery stores, etc. Some of the old single-story shops present in the form of bazaars may be converted into strip malls to provide residents one stop shopping facility in an air-conditioned environment. This would also provide parking facility and security to the people coming for shopping as well as shop keepers. This would also provide shopping, eating, entertainment especially for children.

- **Immediate Action Plan for Core Urban Area**

  - Rehabilitation and Beautification of main bazaar area
  - Provision of pedestrian facility in bazaar area
  - Up-gradation of old bazaar area's roads
  - Banned heavy vehicles during peak hours
  - Removal of encroachments

| Rehabilitation of Main Commercial Area – Activity wise cost in Millions | | | | | | |
|---|---|---|---|---|---|---|
| **S. No.** | **Area / Locality / Address** | **Area (acre)** | **Cost in PKR million.** | | | |
| | | | **Street / Road / Parking** | **Utility Infrastructure** | **Public Facilities** | **Security** |
| | **Rehabilitation of Main Commercial (CBD) Area**<br>Rehabilitation/upgradation of<br>- Main Bazar area<br>- Chambar Road<br>- Cinema Road | **70** | 17.45 | 2.09 | 26.17 | 17.45 |
| | **Total PKR Rs. Million** | | **63.16** | | | |

**Note:**

1. Commercial areas should be enlisted in Govt. Agency for all services of Trade, Retail, Marketing, Sale etc.
2. All commercial areas security services are associated with combine effort of commercial trade union and local Govt.
3. Commercial areas accessibility for daily users and marketers is well define with ease.
4. Provision of pedestrian facility in the Bazaar area
5. Banned heavy vehicles during peak hours
6. Removal of encroachments

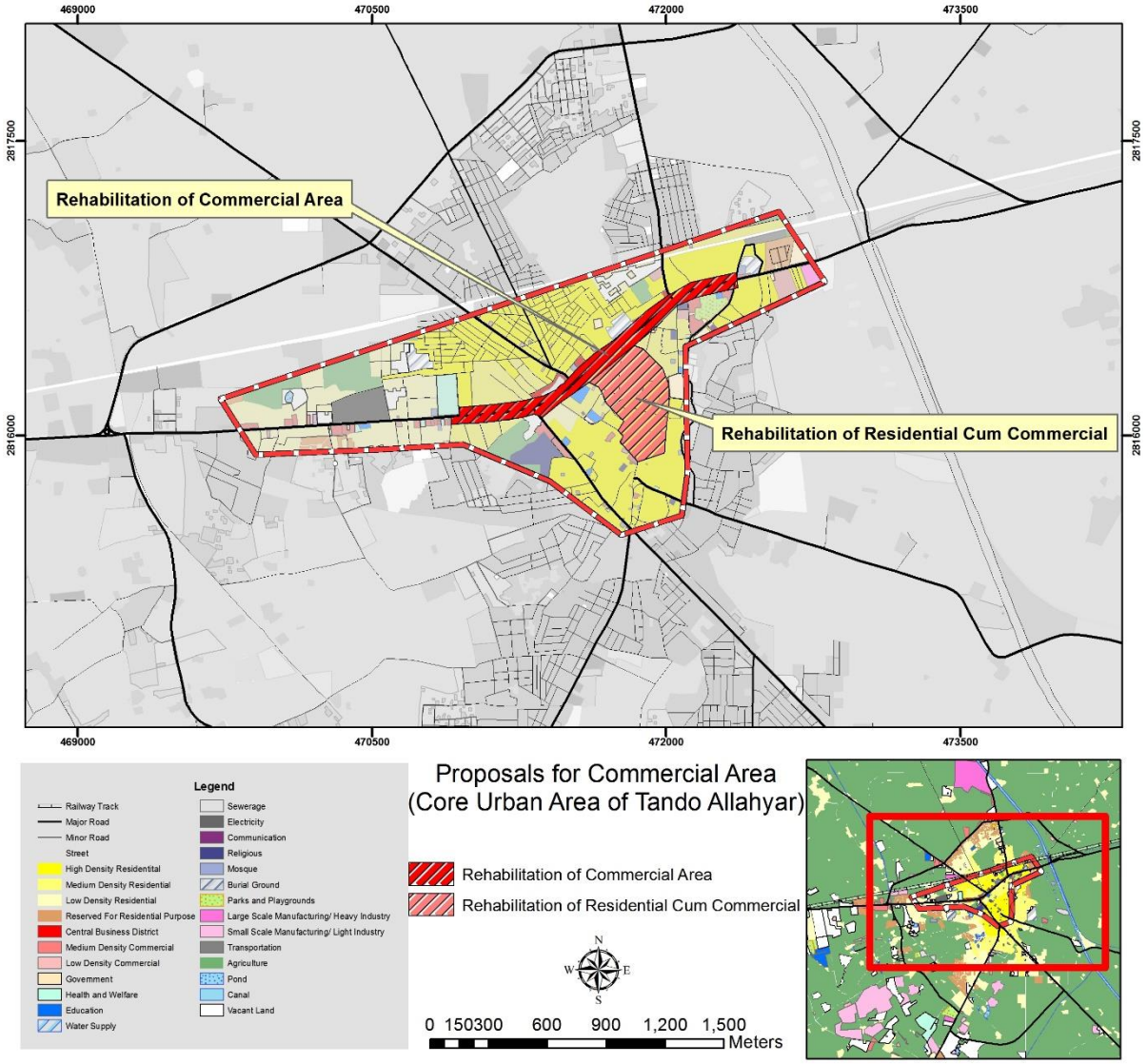



**Figure 9-5: Proposal for Commercial Area (Core urban area)**

## 9.6 Economic Development Plan for District Headquarter Town with Poverty Reduction Strategy (PRS)

**Poverty Reduction Strategy (PRS)**

Sindh province is leading the way in being the first province to have taken the bold step of formulating a specific Poverty Reduction Strategy (PRS) for the entire province, which has been approved by the Sindh cabinet on 16th October, 2018. The PRS developed is aimed to act as medium-term instrument to address the challenge of poverty in Sindh and to have a specific focus on Community Driven Local Development (CDLD). This is a logical approach for Sindh, given the GoS initiatives over the last decade in CDLD, through the Union Council Based Poverty Reduction Programme (UCBPRP).

### i. A Vision for Poverty Reduction in Sindh

The poverty reduction strategy is aimed to act as medium-term instrument to address the challenge of poverty in Sindh. As such, the long-term intentions and aspirations of the GoS in reducing poverty should be clear, with a definable 'vision' for poverty reduction and associated goals and targets to be achieved over the specified duration of the Strategy.

### ii. Poverty Reduction Strategy (PRS) Approaches

The PRS illustrates three dimensional approaches to reduce poverty at Rural and Urban Level

I. This includes continuation of People Poverty Reduction Program to carry out interventions of financial support and capacity building at grass root level
II. The second proposal entails a model of Rural Growth Centers which will serve as a business hub by clustering the geographically connected and demographically viable village
III. The third approach envisages reducing urban poverty by adding urban economic clusters and creating linkages between rural and urban poverty reduction activities

### iii. Poverty Reduction Strategies

The three key strategies of the PRS, and their core components, are:

**STRATEGY I Community Driven Local Development (CDLD) – the Foundation**

The CDLD Policy is incorporated within and is a component of the PRS continuation of a CDLD approach consists of:

- Building on and expanding the UCBPRP programme
- Mainstreaming a CDLD approach, and integration of this approach with line department activities.

**STRATEGY II Addressing Urban Poverty**

- The direction of the strategy to address urban poverty is on emphasizing ' urban within rural' – focusing on the small towns within rural areas of Sindh
- The strategy focuses on targeting employment opportunities and enterprise development
- A key approach within this is utilizing urban economic clusters as a means to facilitate cooperatives in enterprise development.

Urban Income Enhancement Program and Economic Cluster

In order to address the issues of human development and poverty in districts, the policies and programs are to be developed both for rural and urban areas. These issues for the development of city have been tackled by linking with "Urban Income Enhancement Program" which emphasizes in establishment of "Urban Economic Cluster" focusing on:

- Small Enterprise Development,
- Vocational training and
- Encouraging Women Force for establishing handicrafts and cottage industry

This would lead to creating the opportunities for income generation and employment.

**STRATEGY III Rural Growth Centers, or 'Service Hubs'**

- This strategy consists of a new approach in the way forward to address rural poverty and development. This involves identification of locational focal points or villages that can serve as a center for improved facilities and provision of services to the surrounding clusters of villages
- The intention is to consolidate services and facilities in these hubs, to provide growth and development opportunities.

Rural Growth Centre

It include the following components but not limited to

- Housing and village up-gradation (internal roads, drains, parks, Masjid)
- Commercial facilities to support local agro-based businesses and services; for example, storage facilities including refrigerated facilities for storage of agricultural inputs and outputs), distribution centers, sale outlets, bank, milk chilling plant, veterinary clinic
- High school for students from villages in the cluster
- Rural Health Centre
- Vocational center and other community facilities, such as RSP center
- Drinking water plants.

**iv. Mainstreaming the Poverty & Policy & Program**

In order to initiate the development of a stronger economy of towns, its policies need to be embedded in sector strategies of the following departments along with Municipal Town Committees and Katchi Abadi regulators:

- Industries & Commerce Department
- Local Government Department
- Works & Services Department
- Transport Department
- Planning & Development Department

**v. Access to Micro-Finance**

Access to demand-driven microfinance provided by sustainable microfinance institutions (MFIs) has proven to be a powerful tool for poverty reduction by improving the ability of poor people to increase income, build assets, and reduce their vulnerability during periods of economic hardships

# 10. ENVIRONMENT

## 10.1 Existing Situation

- The topography within three kilometers of Tando Allahyar is essentially flat, with a maximum elevation change of 16 meters and an average elevation above sea level of 21 meters. Within 16 kilometers is also essentially flat (25 meters). Within 80 kilometers is essentially flat (331 meters).
- The area within three kilometers of Tando Allahyar is covered by cropland (85%) and artificial surfaces (15%), within 16 kilometers by cropland (96%), and within 80 kilometers by cropland (66%) and bare soil (30%).

### 10.1.1 Seismicity

The Seismic zoning map of Pakistan (2015) places Tando Allahyar in Zone 2A which corresponds to which corresponds to peak ground acceleration (PGA(g)) of 0.08 to 0.16 and a possibility of minor to moderate seismic hazards i.e. probability of earthquakes of intensity (MM Scale) 6 to 7.5. Accordingly, a seismic risk factor of 0.1 needs to be incorporated in the design for constructions and installations, for operational basis earthquakes (OBE) about damage due to moderate level earthquakes.

### 10.1.2 Surface Hydrology

The lands along the river are formed of silt and sandy loam. Being in the Indus basin, the plane lands of the area are very fertile and productive. Only a few lands are barren while the rest are quite fertile croplands. Water supply for the agricultural activity in the area is through canals from River Indus.

In summers, water availability in the River and associated canals get reduced thereby putting pressure on the farmers to maintain water supply for the agricultural activity and daily activities. To meet this shortfall in water availability, local farmers in the project area also extract groundwater. For this purpose, most fields in the area have a tube well. The main source of groundwater recharge is the irrigation channels flowing through the area.

Naseer Canal runs through the Tando Allahyar district and irrigates most of the district with the help of several branch canals and watercourses. Branch canals of Khesana Canal irrigate the western part of the district.

Like other small cities of the province, the sewerage system consists of open channels leading to canals. There is no stormwater drainage system exist in the City. Poor and peripheral areas that do not have access to municipal services; and contamination of fresh canal water by raw sewerage that is dumped into it at several locations.

### 10.1.3 Sub Surface Hydrology

Groundwater in the area is generally shallow, and is significantly affected by the irrigation system, which consists of canals fed by the Indus. Naseer Canal runs through the Tando Allahyar district and irrigates most of the district with the help of several branch canals and watercourses. Branch canals of Khesana Canal irrigate the western part of the district.

Generally, the left bank is underlain with saline groundwater unsuitable for agriculture and domestic and potable use. The fresh groundwater is mostly restricted to the narrow corridor along the Indus River, and occasional lenses and perched water. In the freshwater zone, freshwater is mostly pumped by the private tub wells to supplement the canal supplies. In the saline groundwater zones the public sector tube wells drain out groundwater to dispose that into canals or in to the drainage network.

As the groundwater quality of the city has turned brackish, there is need to focus on surface water, which is available near to town.

## 10.2 Ecological Baseline

### 10.2.1 Flora

Due to extensive agricultural activity, most of the natural vegetation in the macro environment is replaced by agricultural field and does not support rare or threatened plant species. Major crops in the area include banana, rice, cotton, sugar cane, wheat, and maize. Most of the plant species present in the site are cultivated. Shisham (Dalbergiasissoo) used to be abundant but was found reduced to a few. Kikar (Acacia prosopis) is not being used as fuel wood since the area has been supplied natural gas. Other trees which are planted are some varieties of mulberry, such as mulberry (Morusalba) and tut (Morus Idevigata); ber (Ziziphusjujuba); dhrek (Meliaazadirachta); and sharin (Albizzialebbek), a quick-growing tree. Sufida (Eucalyptus cameldanesis) is an exotic species that is present in the project area. This plant is also sold commercially to the match industry.

Forest resource: There are three major types of forests in the study areas viz irrigated plantations in the command area of Sukkur, Guddu and Kotri barrages and coastal forests along the coast. Rangelands located in Kohistan and Rajasthan areas are also declared as protected forests. All these forests are managed by the Forest Department Government of Sindh.

Irrigated Plantations: Irrigated plantations of Sindh, also known as inland forests, were once riverine forests but isolated from Indus waters by earthen embankments constructed in the 1930s. Presently, these plantations are irrigated from Sukkur, Kotri, and Guddu barrage irrigation systems.

### 10.2.2 **Fauna**

Wildlife: As a result of shift in land use from a previously uncultivated land to presently extensively cultivated area, the wildlife has noticeably reduced. Due to human intervention, most of the endemic wildlife has either left or become locally extinct. The animals that are now found are common species that are highly adaptable and able to coexist with people.

Active burrows along the margins of agriculture fields indicate a sizable population of small mammals in the area. Gerbillus is one of the most common species found in this habitat. Other common mammals found here include the Asiatic jackal, the desert fox, hare, the palm squirrel, the house rat, the Indian desert jird, the jungle cat, the Indian gray mongoose and the Baluchistan and Indian gerbils. Locals also reported the presence of the Indian wild boar and the damage it causes to crops.

Birds: Resident bird species that are commonly found in the area include babblers, crows, doves, egrets, Indian robins, larks, mynas, sparrows, warblers and the bulbul. The area also hosts many species of migratory birds. These include eagles, hoopoes, Pipit's nosy pastor, nightjars, shrikes, swallows, teals, quails, vultures and wheatears.

### 10.2.3 **Reptiles:**

The area provides a suitable habitat for a number of reptiles. Some amphibian species recorded during the present field visit include the common frog (Rana tigrana) and the Indian toad (Bufomelanosticus). The common sand lizard is the only frequently seen reptile found in the area, although many studies have reported a number of other reptiles in the area. Reptiles are also getting rare because of aridity which has in general reduced the biodiversity of the area.

Livestock: Locals also maintain stocks of cows, goats, and sheep as a second source of livelihood after agriculture. Livestock and ruminants include: Domestic Goat (Capra hircus) Bakri/Bakra; Domestic Sheep (Ovisaries) Bhairru/Bhairr; Domestic Cattle (Bostaurus) Gaon/Dhaggo, Dhaggi (male, female); Domestic Donkey (Equusasinus) Gadduh/Gadah.

Flora and fauna are very important for human existence. The flora releases oxygen which is taken by the fauna for respiratory purposes. In return, the fauna releases carbon dioxide required by the flora for photosynthesis. Human beings are benefitted a lot from flora and fauna through food, medicines, and water. The above mentioned detail of flora and fauna in Tando Allahyar District shows the presence of diversity of life in all its forms, species of genetic variations, habitats connectivity and ecosystems. The variety of flora and fauna in Tando Allahyar District brings more beauty to nature and this could increase the tourism. Hence it is necessary to protect and increase the native plants, this will help to preserve the natural habitat of nearby animals to improve the biodiversity.

## 10.3 Ambient Air Quality and Noise

The Consultants conducted real-time ambient air quality and noise monitoring for 24 hours on 18 August 2017 near Main Bus Stop in Tando Allahyar City. Since it is more congested, busy area causing emissions and noise due to heavy vehicular movement and traffic generation; thus this location has been selected for air quality and noise testing.

The results depicted that the air quality parameters SO2, NO2, NO, CO, SPM and PM2.5 are within the prescribed SEQS but limits of PM10 are just touching the upper limits of SEQS which corresponds to the presence of dust due to dirt roads at the main bus stop. High levels of SO2 and NO2 also show that vehicular emission contributes to the deterioration of air quality. Also, the noise readings at a few point of time are exceeding the prescribed limits of SEQS for commercial area i.e. 65 dBA which also depicts the road traffic congestion.

## 10.4 SWOT Analysis

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| **ENVIRONMENT** | | | |
| **Land** | | | |
| 1. Flat fertile land suitable for development<br>2. Rural rich fertile agriculture land that produces quality crops.<br>3. Soil of Tando Allahyar is very fertile. | 1. Unplanned land uses<br>2. Limited availability of govt. land for future spatial growth<br>3. Incomplete development of agricultural land parcels (scattered agricultural growth)<br>4. Poor administration by agencies monitoring urban growth of the city. | 1. If treated through appropriate urban design principals & standards, can be transmitted into mixed land uses and strong activity centres.<br>2. May increase productivity if cultivated at full strength. | 1. Land shortage for new development.<br>2. Slum formation<br>3. Contamination of land in un-irrigated areas. |
| **Fresh Water Bodies** | | | |
| 1. Huge irrigation canal based network available<br>2. Inland fisheries water ponds exists.<br>3. There are 11 private fish production farms in Tando Allahyar district. | 1. Water contamination due to waste disposal<br>2. Contamination of standing water bodies created by rain and flood water at open lots is an invitation to malaria and dengue.<br>3. There is not any governmental fish farm in district Tando | 1. Temporary water bodies can be used for fish farming.<br>2. To provide the extension services in private sector<br>3. To acquire land for fish production in District<br>4. Lease of fishing rights, | 1. Contaminated water is a serious threat for human health.<br>2. Standing water gives birth to diseases<br>3. Threat to agricultural land<br>4. Affect agricultural production |

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| | Allahyar nor any area associated with the fisheries department. Also no area is pre identified by Fisheries Department for usage. | conservation, management and promotion of fisheries. | 5. Water logging. |
| **Climate** | | | |
| 1. Suitable for producing crops.<br>2. The hottest months of summer are June and July which bring rich fruits and vegetables, while the coldest months of winter are December and January which bring a good and suitable weather for the inhabitants.<br>3. Due to the climatic conditions and plenty of irrigation water from canals, different types of crops are cultivated in this district, especially cotton, wheat, sugarcane, and all types of fruits and vegetables.<br>4. Mangos grown in District Tando Allahyar are famous all over the country | 1. Rainfall shortages affect the efficiency of canal system.<br>2. Hot winds blow from May to August from south to north which disturb the inhabitant's life very badly. | 1. Agricultural practices can be changed in accordance with weather condition for maximum production.<br>2. As mangoes in the district are famous so they can be used to increase the economy of the region through their export to other regions and countries as well. | 1. Droughts<br>2. Heavy rains Climate change affects agricultural production |

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| **Air** | | | |
| 1. Air quality in the rich agricultural belt is good for human health, and also keeps ecological balance in atmosphere.<br>2. Most of the area is air pollution free. | 1. Core area air is polluted by high volume of traffic | 1. Development planned with respect to air circulation can provide relief to inner city's polluted environment.<br>2. In future the town can be planned as Green City. | 1. Air pollution<br>2. Respiratory diseases |
| **Urban Area & Areas Suitable for Urban Development** | | | |
| 1. Land available for future development within town urban boundary.<br>2. The land use analysis indicates that almost 40% of total urban boundary area is in use of residential purpose only where as 55% of the area is covered by agriculture fields. | 1. Loss of agricultural land through land development for housing purpose<br>2. Water logging<br>3. Unplanned growth inside town.<br>4. Lack of utility services | 1. Mixed land uses may create activity centres.<br>2. High density will overcome housing shortages. | 1. Land grabbing<br>2. Slums<br>3. Unplanned growth<br>4. Threat to agricultural land<br>5. Private sector may increase the cost of services. |
| **Drainage & Flood Control** | | | |
| 1. Most of the town is served by combined drain and sewer system. | 1. Canal passing inside urban area also used for sewage disposal<br>2. Drainage and sewerage system of the urban areas are not constructed properly and disaster risk reduction measures are not incorporated while such construction is carried out. Consequently even small amount of rain blocks the drains, which inundates the | 1. The city's old drainage system needs revival through cleaning.<br>2. Flood protection embankments should be enhanced up to greater extent to provide maximum protection to surrounding villages<br>3. Development of surface drainage network with easy | 1. Canal's water have been contaminated by open drains discharge.<br>2. Medium level flood disaster threat to local communities living near to main course of River Indus.<br>3. Open and overflowing drains have impact upon human health |

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| | streets, houses and markets.<br>3. Open drain on street.<br>4. Improper channelization of drains<br>5. Over flow of storm water drains<br>6. Lack of interest among stakeholders involvement in disaster relief activities.<br>7. Poor administrative control for operating existing drainage system of the town.<br>8. Depression areas causing permanent ponding.<br>9. Reliance on sewer for flood/storm water | disposal to river/canals<br>4. Completely removal or treatment of land where temporary ponds have been formed in main town area. | and give birth to epidemic diseases. |

## 10.5 Issues

- Water logging and salinity
- Water Contamination
- Low quality of surface water that is not fit for drinking
- Seismic Risk
- Aging of surface drainage canal system

## 10.6 Policy Guidelines[47]

- Enhancing role of local governments in sustainable management of natural resources
- Conservation of biological diversity, protection and sustainable use of indigenous flora and fauna
- Sustainable Management in Reserved, Protected, Flora and Fauna
- Management of irrigated and linear plantations
- Promotion of indigenous species
- Increase the efficiency of surface drainage.

[47] National Forest Policy 2010

## 10.7 Strategic Development Plan

### 10.7.1 Long Term Plan

- Achieving sustainable development, while overcoming environmental challenges such as land degradation, watersheds and marine fisheries, deforestation, waste management and pollution control, and climate change
- Multi-pronged approach to fisheries management should be adopted that takes account of economic, environmental, and social performance
- Rehabilitate degraded ecosystems and create environmental awareness
- Develop and implement policies that integrate the objectives of conservation and development to reduce pressure and protect environmental values and conserve biodiversity
- Fostering public-private partnerships

### I. Short Term Plan

- Ensuring environmental sustainability
- The requirement for Environment Impact Assessments to be binding on all parties including government
- Restoration and maintenance to preserve ecological cycles, functions and services of environment
- Strengthening forestry education and research institutions to cope with the emerging challenges of deforestation and climate change
- Increase the productivity of rangelands
- Provide recreational facilities for public by improving forest parks
- Alleviate poverty through creation of forest based income generating opportunities
- Rehabilitation of Irrigated plantation
- Enhance Rangeland production and planting fodder trees for farmer community
- Improvement and Rehabilitation of Forests Parks
- Afforestation of Blank Reaches along Important Highways

# 11. DISASTER RISK MANAGEMENT

## 11.1 Existing Situation

### 11.1.1 Floods

Tando Allahyar was severely hit by rains/floods in 2011, though, the district falls under the category of medium risk districts as declared by PDMA Sindh. In 2011 rains/floods, 1,609 villages/settlements of 19 union councils in 3 talukas were affected. A population of 569,829 persons was affected and there were 3 casualties and 5 injuries. In total, 70,163 houses were damaged. The district was completely inundated and 66 percent of the sown area was affected.

The 2012 rains caused one casualty in the district Along with the demographic loss due to floods 2011, the loss to agriculture sector exacerbated the sources of livelihood for the people of this district. the loss to agriculture sector of this district. Was 91% of the cotton crop was damaged along with 59% of the rice crop, 25% sugarcane and 89% of other crops. 179 livestock heads died due to the floods.

### 11.1.2 Seismicity

The Seismic zoning map of Pakistan (2015) places Tando Allahyar in Zone 2A and 2B which corresponds to possibility of minor to moderate seismic hazards i.e. probability of earthquakes of intensity (MM Scale) 6 to 7.5.

### 11.1.3 Droughts

- In routine, within a normal year, between 15 to 20 percent of poor families migrate towards areas of province Sindh which have barrages such as Badin, Sanghar, Mirpurkhas, Hyderabad, Tando Allahyar and Tando Mohammad Khan to work as the seasonal labor and other livelihood opportunities. Due to droughts, approximately 25 to 35 percent population of region migrated to work in friendly environments.[48]

- For example, in 2014 it has been observed that approximately 40 to 50 percent families were forecasted to migrate towards barrage areas. Most of these people prefer to settle and work at low wages, leaving them with little opportunity for bargaining power, and where their identity is counted as susceptible as exploited by their employers.

[48] Retrieved from https://www.dawn.com/news/1132994, published on Sep 19, 2014.

### 11.1.4 Impacts of floods

**i. Food Security**

District Tando Allahyar is on the borderline of food insecurity. Floods of 2011 worsened the existing situation of the population. Thus the indicators of food security i.e. availability, access, utilization and stability showed dismal situation in this district.

Since district Tando Allahyar is agro-based, majority of the households are engaged in agriculture farming and livestock rearing activities and the rest depend on non-agriculture activities/casual labor etc.

Through the destruction of roads, transport and market infrastructure, the floods had a significant negative impact on the commodity market. As a result, the functioning capacity of the markets (transporters, processors, wholesalers and retailers) was decreased with upward movement of transaction costs and shortage of food commodities. This phenomenon hindered the socio-economic access to food in the district.[49] The losses to crops and livestock along with the poor functioning capacity of the market significantly reduced the expected income of the population of this district. Thus the floods and rains affected people of the district Tando Allahyar had to face a number of key challenges to recover their livelihood, agriculture and livestock; directly affecting the food security situation.

**ii. Health**

In 2011 floods, 2000 IDPs were in Camps and they need Health services in those seasons as they were in tents & in open air in close contact cold weather in future rainy seasons were ahead. The Floods, caused by heavy rains in 2011, resulted in damage to the public health infrastructure in Sindh Province. Basic health units and rural health centers suffered the most damage. According to the Civil Society Floods Situation Report 2011, 6 BHUs were damaged in district Tando Allahyar that is 43% of the total number of BHUs in the district However, as per data collected, the flood affected health facilities in the district had adequate stocks of medicines, equipment and other consumables for one to two week.

**iii. Education**

School facilities were also adversely affected in this district as 78 schools were damaged due to floods 2011.

**iv. Livestock**

Beside loss to natural resources, crops, agricultural lands and human life and activities, livestock's life is always endangered by droughts. Thus, alternate arrangements for emergency response facilities like nutritious fodder, vaccines and livestock sanctuaries must be established to prevent the migration or demise of livestock during droughts. The responsibility to implement such measures falls upon the Livestock Department. As the fodder depletes, livestock are fed on dry grass, leading to a host of digestive problems such as diarrhea, toxemia and metabolic disorders; compromising their immune systems and affecting milk production. This adds to the woes of livestock owners, whose total income

[49] *Ibid*

generation dependency is upon production of milk produced by cattle, for the benefit of their families and affordability.

As weak and diseased livestock migrate with their owners to barrage areas, a trend of collapse in livestock prices has also noticed, with a healthy goat that sold at full price, once weakened by drought, normally worth only 35% of its original price.

### 11.1.5 PUBLIC SAFETY

Public safety is the priorities principal of any governance whether it is Federal, Provincial, Divisional or District.

To spread terror in residents, terrorists mainly focused / target crowded places e.g. educational institutions, stadium, shopping centres, malls, religious centres, institutional setups like press club etc., which are less protected in Sindh especially. Terrorist activities can be performed in any shape but mainly on crowded places.

- **Crowded Places**

  Crowded places will remain an attractive target for terrorists, who have demonstrated that they are likely to target places which are easily accessible, regularly available and which offer the prospect for an impact beyond the loss of life alone (for example serious disruption, or a particular economic/political impact).

- **Responsibilities of National / Provincial / Local Government**

  Police and Local Administration Government have the primary responsibility for preventing, preparing for, responding to, and recovering from terrorist attacks in their jurisdiction.

  The protection and resilience of crowded places—particularly those at an elevated security risk—is a key focus of National / Provincial Police / Local Government Administration. While the owners and operators of crowded places remain responsible for implementing protective security measures, National / Provincial Police / Local Government Administration acknowledge that responsibility for building and sustaining resilience to terrorism is shared between government, owners and operators, and communities.

  National / Provincial Police / Local Government Administration are responsible for providing threat information to owners and operators of crowded places. This includes material developed by National / Provincial Police / Local Government Administration, Law Enforcement Agencies (LEA) etc. Police provide specific information on the local threat context to help owners and operators develop protective security measures.

Police are also responsible for running and administering Crowded Places Forums. These Forums are the primary means of collective engagement between police and local owners and operators of crowded

places, including businesses and local councils. Members of the Crowded Places Forum can share information, guidance, and lessons learned relevant to their local circumstances.

- **Responsibilities of Stakeholders**

  Implementation of protective security measures and reducing the vulnerability of crowded places to terrorist attack was not just a job for the Government (Federal / Provincial / Division / District) and the police alone. To be most effective, this work requires engagement from a range of local partners, including local authorities and businesses, in order to identify vulnerable sites and prioritize work to reduce those vulnerabilities.

- **Identification of Land uses for Potential Terrorists Attack**

  Consultant identified different land uses in Tando Allahyar which are potential crowd pulling places.

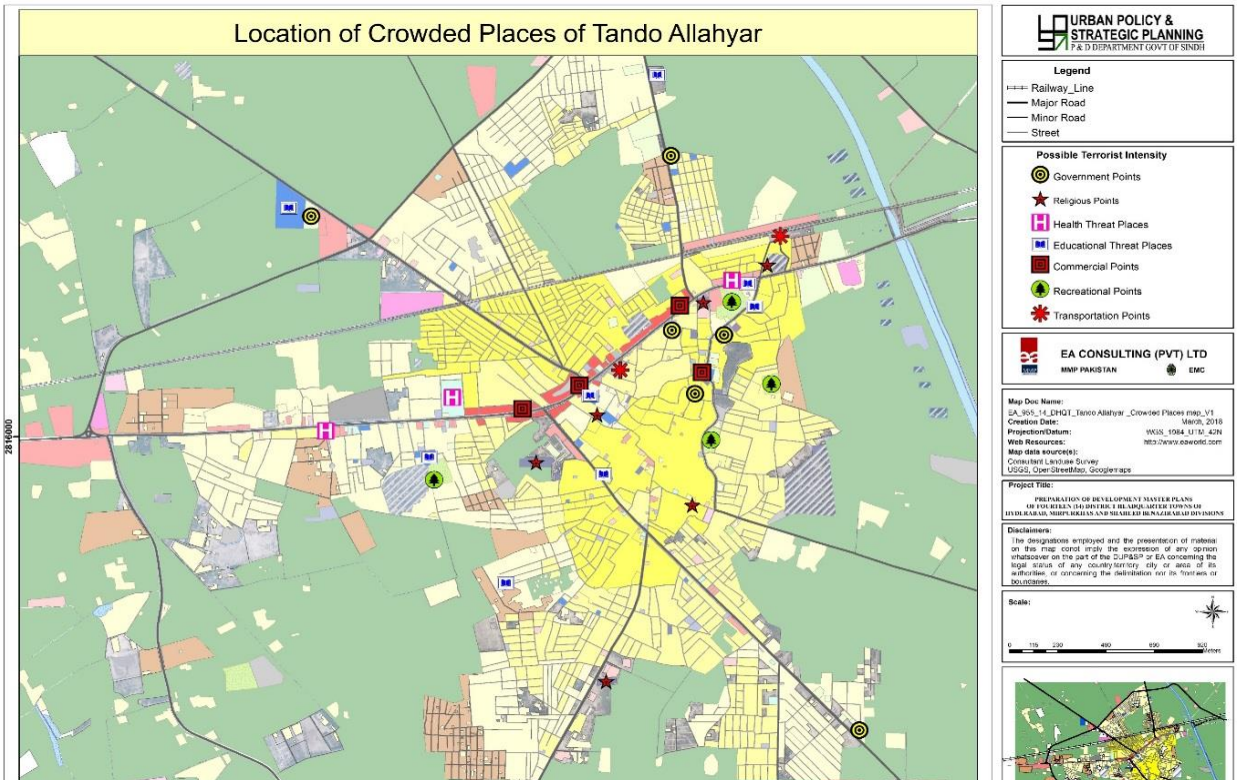



**Figure 11-1: Crowded Places of DHQ Town Tando Allahyar**

**Table 11-1: Potential Terrorists Threat**

| S. No. | Landuse | Terrorist Threat |
|---|---|---|
| **1** | Education | Secondary Schools/College/ University |
| **2** | Health | BHU/Hospitals/Medical Collages |
| **3** | Commercial | CBD/Mandi/Shopping Mall |
| **4** | Religious | Eid Gah / Shrines/Minority Religious Places/Imam Barghas |
| **5** | Government Offices | District Court/DCO Office/SSP Office/District Jail/Police Head Quarter/LEA |
| **6** | Recreational | Tourism Places |
| **7** | Transportation | Bus Stop/Railway Station/Airport |

**Existing Situation**

Concerned authorities have not come up with any plan for terrorist's activities / attack to reduce potential threats, incident management, crisis management, business / life continuity and recovery phases.

**Possible Terrorist Intensity Places of DHQ Town Tando Allahyar**

Consultants identified some possible terrorist Intensity places of DHQ Town Tando Allahyar on the basis of Crowd and most visiting places by the residents of DHQ Town Tando Allahyar, the places are classified according to the given the above table

**Proposed Strategy to Counter Potential Threat Measures**

Proposed Strategy for Protecting Crowded places from Terrorism is based on strong, trusted partnerships between all levels of government and those responsible for crowded places. It aims to make crowded places as resilient as possible to terrorist attacks while preserving our use and enjoyment of these places. A nationally consistent approach will help achieve this objective in an effective and efficient manner.

The Strategy involves four core elements which provide a structure for building a consistent national approach to protecting crowded places that can be applied flexibly.

- **Building Stronger Partnerships**
- **Enabling Better Information Sharing and Guidance**
- **Implementing Effective Protection Security**
- **Increasing Resilience**

**Building Stronger Partnerships**

Protecting crowded places from terrorism is not just a job for governments, it is a responsibility shared by the private sector and the community. The success of this Strategy rests on sustainable and strong partnerships between all governments and owners and operators of crowded places, including businesses and local governments.

Trusted relationships between governments and owners and operators of crowded places are fundamental to the effective implementation of this Strategy. The Crowded Places Partnership sets out a range of mechanisms to support this engagement, but none of these replace the ability for all police and intelligence agencies to engage directly with owners and operators when required.

**Enabling Better Information Sharing and Guidance**

Protecting crowded places from terrorism in an evolving threat environment requires trusted and routine information sharing and guidance between all governments, industry sectors, business, and communities. It is a key responsibility of government to ensure those who own and operate crowded places have access to high quality threat information.
The flow of information between governments and those responsible for crowded places is not one-way. Owners and operators should be willing to share information, advice, and lessons they have learned with governments and their peers. Building a strong and inclusive security culture is a responsibility shared by all.

**Implementing Effective Protection Security**

Implementing protective security measures can be a complex process which, if done incorrectly, can be costly and ineffective. Owners and operators have a responsibility to undertake a risk assessment and/or vulnerability analysis of their crowded place, implement the appropriate mitigations, monitor them for effectiveness (including through audits), and review them at appropriate junctures.

- **Guidance**

  Before owners and operators make decisions about protective security measures they must first understand how attractive their location may be for a terrorist to attack.
  Crowded places encompass a significant range of different locations, venues and businesses. They differ substantially in size and have different levels of risk to manage.

- **Layered Security**

  The goal of layered security is to reduce the likelihood of a successful terrorist attack on a crowded place by building multiple layers of redundancy into a site's security architecture.
  Layered security describes the practice of securing a site by applying multiple layers of complementary protective security measures.

  The following represents some examples of protective security measures that can be used within each layer. Some security measure can strengthen multiple layers. For example, the effective use of security officers can help to delay, detect, deter, respond to, and recover from an attack.
  **Deterring** a potential terrorist attack can involve the presence of obvious physical and electronic target hardening measures, including:
  - Fencing indicating demarcation;

- Perimeter security lighting;
- Warning signs and notices;
- High visibility security patrols;
- CCTV cameras;
- Perimeter vehicle security barriers.

**Detecting** a potential terrorist attack can occur through visual detection and alert systems, including:

- CCTV cameras;
- Electronic intruder detection systems;
- Reporting of suspicious behaviour by security officers, staff, or members of the public;
- Vehicle screening and searching;
- Canine explosive trace detection;
- Screening—x-ray machines, metal detectors, explosive trace detection, and bag inspections.

**Delaying** a potential terrorist attack can occur through physical counter-measures and other approaches including:

- Security fences;
- Environmental barriers including water features, natural topography, and vegetation;
- Vehicle security barriers and measures to slow the speed of vehicles;
- Pedestrian and vehicle access control points;
- Trained staff interventions;
- Rapid security officer response.

**Responding** to a potential terrorist attack requires a timely and coordinated security response throughout a crowded place's area of control. Important elements of response include:

- Security staff who can respond quickly and possess the requisite training, competence and equipment to deal with or limit the impact of threats to the location;
- Reliable emergency communication systems throughout the location;
- Comprehensive security plans that are understood by all staff and security personnel, regularly exercised, and compatible with local emergency services plans.

**Cost and Proportionality**

Security measures can be resource intensive, costly and, if not correctly managed and communicated, can alienate staff and the public and significantly disrupt the day-to-day operations of a crowded place. This is why expert specialist advice is essential and why careful consideration and planning is required before implementing any protective security measures. The following principles should underpin all decision-making:

- It is not possible to protect everything, so owners and operators must **prioritise** the highest risk areas of a crowded place;
- All protective security measures should be **proportionate** to the level and type of threat;
- Security is more **cost effective** when incorporated into the design phase of a crowded place.

**Reputation**

The success of governments and businesses rests on building and maintaining a good professional reputation. Reputation is prone to serious and permanent damage if owners and operators of crowded places give a less than robust, responsible professional priority to protecting people against attack. Being security minded and better prepared could not only deter an attack, it reassures customers and staff that those responsible for crowded places are taking security issues seriously.

**Recovery**

Recovery from a terrorist attack is the process of rebuilding, restoring and rehabilitating affected individuals, communities, and physical assets. This process usually begins once an incident has been resolved, continues until disruptions have been rectified, demands on services have returned to normal levels, and the needs of those affected have been met.

**Increasing Resilience**

Even the most the most robust and thorough protective security plan may not stop a terrorist attack on a crowded place from occurring or succeeding. But what well-considered and tested protective security does is reduce both the likelihood of a terrorist attack occurring and the consequences of such an attack.
Resilient crowded places can do more to prevent a terrorist attack, can reduce the damage caused by an attack, and can recover more quickly after an attack has occurred. Building a strong security culture is central to developing resilience to terrorism and other types of criminal activity.

Other elements of building an effective security culture can include:

- Ensuring that security is a permanent feature of executive decision making and agendas;
- Requiring senior management to demonstrate personal commitment to and compliance with security values and standards;
- Understanding commercial, reputational and legal risk that could result from inadequate protective security measures being in place to prevent or mitigate a terrorist attack;
- Providing staff with clear, succinct and jargon-free guidance about security standards and procedures;
- Promoting good security practice to both staff and visitors by making use of internal communication systems, posters, message boards and newsletters;
- Adopting effective and lawful staff screening processes during recruitment;
- Providing staff training in security practices;
- Exercising all staff in security scenarios;
- Self-initiated security penetration and breach testing;
- 
- Sharing information with staff about security breaches;

Encouraging and rewarding staff for identifying and reporting security vulnerabilities

## 11.2 Issues and Problems

- Low levels of risk awareness and knowledge.
- Development not “risk conscious” and DRR not yet effectively integrated.
- Insufficient DRR capacity at all levels of society.
- The involvement of the private sector in DRR is as of yet negligible.

## 11.3 Policy Guidelines[50]

- Arrange and conduct need assessments of damages / losses.
- Ensure application of proper mechanism for evacuation and relocation of affected community to safer places.
- Establish Relief Camps with necessary arrangements.
- Initiate relief and rescue activities in their respective areas with the help of all stakeholders which also include provision of shelter, food, medicines etc. to the affected communities as well as to IDPs who are settled in makeshift Relief camps
- Arrange coordination meetings with health units.
- Mobilize entire health network functioning in the district for situation analysis and need assessments.
- Arrange mobile teams / Mobile Medicine Units for pre-medication of affected communities in all near and remote areas.
- Delegate responsibilities for regular inspection and maintenance of irrigation channels and drains.
- Coordinate and communicate with DDMA.
- Identify and strengthen the vulnerable points in the banks of all canals and drains running through the district.

## 11.4 Strategic Development Plan

The aim of the policy is to advocate an approach to disaster management that focuses on reducing risks – the probability of losing one's life or health, assets and livelihoods.
Some of the objectives in this aspect includes

- Develop coordination mechanism with PMD for ascertaining flood discharge.
- Develop mechanism for regulation of water discharge into canals, distributaries and drains before onset of monsoon season.
- Develop monitoring mechanism for inspection of embankments, weak parts of drains, IPs (inspection parts) and NIPs (Non-Inspection Parts) of all irrigation channels.
- Provide necessary medical facilities at relief camps.
- Close coordination and communication with DDMA.
- Depending on the calamity, the D.H.O will declare emergency at all medical points/health facilities. Detail of medical/paramedical staff at all points requiring medical health cover during any disaster

[50] National Disaster Risk Reduction Policy 2013

**I. Long Term Plan**

- The DSM, PPHI shall also be responsible for providing medical cover to the IDPs in the catchment area of BHUs assigned to them particularly, and will perform their due role in supplementing the overall medical cover provided by the District Health Department.
- National risk assessment would identify highly vulnerable districts and be complemented by higher resolution work at local level to diagnose the underlying causes of risk, explore concrete risk reduction options and inform development planning and prioritization exercises and/ or disaster preparedness planning.
- DRR needs to address and involve local level actors in high-risk communities to be effective and produce sustainable results.
- There is need to clarify mutual roles and responsibilities (horizontal and vertical) and coordination arrangements in an updated, multi-hazard national response plan that is based upon current legislation.

**II. Short Term Plan**

- Vigilance of canals / drains round the clock.
- Closure of canals at the heads as soon as possible in case of any breach or heavy downpour, etc.
- Ensure smooth flow of water, plugging up of breaches, if any, in the shortest possible time.
- Prompt dewatering of stagnant water from affected and low lying areas of the district.
- The Executive Engineers, HESCO Division shall ensure uninterrupted supply of electricity particularly to municipal services such as pumping stations for draining out rain water from the low lying and slum areas. Shall make arrangements for immediate removal/repair of fallen live wires to avoid any untoward incident of electrocution
- Arrange and provide adequate stock of medicines and medical supplies including Anti-Snake Venoms (ASVs) and Anti-Rabbi Venoms (ARVs), blood plasma, Saline Water, and other medical fluids for victims.
- Arrange medical teams for providing medical cover to the IDPs settled in any relief camp.
- Fumigate the affected areas and areas at risks of spread of any of epidemic disease.
- Ensure that all ambulances are in working order and road worthy conditions.
- Ensure vacant possession of all schools buildings at the time of emergency for setting up relief camps.
- Ensure sanitation and cleanliness as well as clean drinking water facilities wherever possible at all school buildings declared as relief camps through by binding down their concerned Headmasters.

# 12. CLIMATE CHANGE EMERGENCY CONTINGENCY PLAN

- **District Level Plan**

Tando Allahyar District is prone to canal flooding and floods caused by heavy rainfall.

- **Broad `Contours of the Plan**
  - Early warning of approaching weather system will be provided by Pakistan Meteorological Department (PMD) and communicated to the District Disaster Management Authority (DDMA). DDMA is expected to translate weather forecast and flood warnings into usable early warning for vulnerable communities and ensure its timely dissemination to all concerned.
  - In case, there is continuous rise in major canal water level the people residing near major canals will be evacuated to safer places.
  - Threatened population will be evacuated by DDMA.
  - DDMA would be responsible for provision of search and rescue, medical and emergency responses.
  - Camps will be established at pre-selected sites by DDMA.
  - DDMA would be responsible for effective and transparent relief distribution including relief provided by Provincial Disaster Management Authority (PDMA), National Disaster Management Authority (NDMA) and other Humanitarian Agencies.
  - All stakeholders would take necessary actions to facilitate early recovery and rehabilitation of affected population.
  - In case the district falls short of meeting the humanitarian needs, PDMA will assist by making available the required stocks. In case when disaster exceeds capacities of the provincial government, NDMA will be requested to make available the additional stocks from national reserves, prepositioned across the country.
  - When required, Armed Forces may be requested for assistance by PDMA Sindh at any stage, particularly for rescue, evacuation and emergency relief phases. Thus, the DDMA will have to submit the request to PDMA for assistance of armed forces in aid of civil administration.
  - Special requirements of Aviation / Naval support by any agency will be coordinated by PDMA.
  - Resources of Government Departments and Agencies such as, Pakistan Red Crescent Society and domestic philanthropy may be requisitioned, if the intensity of the situation so entails for an effective response.
- **Early Warning**

Pakistan Meteorological Department

- Pakistan Meteorological Department (PMD) has a broad mandate of supporting agro-based economic activities, air and maritime traffic safety, disaster mitigation efforts and disseminating weather forecast to numerous end users. PMD will ensure the following during monsoon season:
- Inform public on the weather forecast and issue warning in case of potential threat like Rainfall.

- Collect rain data on a regular basis, consolidate and share it with all concerned.
- Disseminate flood information to the NDMA/PDMA on a daily basis during flood season.
- Share weather forecasts and early warning information with NDMA, F/G/S PDMAs, and the media on a regular basis in the monsoon period.
- Coordinate with FFC, WAPDA, PCIW, FFD, and SUPARCO in the Monsoon period to generate flood warning where wanted.

**I. Flood Forecasting Division (FFD)**

- FFD is an affiliated organization of PMD. It disseminates flood early warning and river flow updates to relevant National, Provincial and District Governments and National Response Agencies, especially in the context of Monsoon Season.

**II. Pakistan Space and Upper Atmosphere Research Commission (SUPARCO)**

- SUPARCO deploys its satellite imagery capacities for disaster impact mitigation and for early warning of disaster occurrence and trends monitoring. SUPARCO will play the following role during monsoon season:
- Provide remote sensing and satellite maps before and during disasters in order to show their impact.
- Provide remote sensing and satellite maps for hazard risk zones to enable relevant agencies to take measures for minimizing damage to population and property.
- Assist post-disaster damage assessment.

**III. District Disaster Management Authority (DDMA) Response**

- DDMAs shall activate District Emergency Operation Centers (DEOCs)
- In the event of a disaster, organize emergency response through the District Emergency Operation Center (DEOC)
- Setup early warning mechanisms and dissemination of proper information to public, prepare district level response, plans and guidelines, establish stockpiles of relief and rescue material; provide information to PDMA on different aspects of Disaster Management.
- Inform/update PDMA regarding the overall situation.
- Organize evacuation on priority basis.
- Conduct initial and subsequent assessment of disaster affected areas and determine the extent of loss and damage.
- Collect information on damage status and promptly plan for the resources requirement for relief operation and share it with the PDMA.
- Provide food, drinking water, medical supplies and NFIs to the affected population
- Preferably, set up tent cities / relief camps on open land and provide relief to the affectees in camps.
- Coordinate with PDMAs to deploy resources for emergency response.
- Mobilize community volunteer groups and civil defense for emergency operations.

- Forward timely situation reports (SITREP) on daily basis to PDMA for its timely dissemination to concerned quarters.
- Ensure registration of all relocated population in the camps and overall affected population on gender-segregated basis.
- Prioritize vulnerable segments of society in their relief operations.
- Facilitate early return of relocated population and help in restoring their livelihoods.

## 12.1 Health Department

### I. Pre-Disaster

- Provide specific information required regarding precautions for epidemics
- Establish a health mobile team in district & town headquarter hospital
- Setup an Information Center to collect and share information amongst relevant stakeholders.
- Collaboration with relevant organizations/partner NGOs.
- Stocking of life saving drugs and vaccines.

### II. During Disaster

- Providing emergency treatment to the affected
- Provision of First-aid & water testing kits, chloramines and anti-snake venom serum & other emergency support
- Deployment of mobile medical teams & health staff
- Collaboration with all relevant stakeholders

### III. Post Disaster

- Establishment of medical camps, vaccination, ensuring safe food & water in camps
- Conduct impact assessment on health, intervene to stop outbreak of diseases
- Rehabilitation of health infrastructure

## 12.2 Education Department

### I. Pre-Disaster

- Providing the necessary information, training to teachers & students regarding disasters with tips to save their families & themselves during disaster.
- In collaboration with Civil Defense and Boy Scouts / Girl Guides Association and gear up the volunteer's force.
- Educate students about Healthcare Precautions

### II. During Disaster

- Mobilize the human resources for intervention during disaster
- Arrangement for evacuees to setup relief & temporary shelter camps
- Deployment of volunteers for camp management & emergency support

### III. Post-Disaster

- Assessment of damages & needs of affected educational institutes

- Rehabilitation of affected educational institutes
- Continuing education of children at camps and helping them to recover from shock by providing toys etc.

## 12.3 Agriculture Department

**I. Pre-Disaster**

- Assessment of high risk prone areas and estimation of possible damage
- Create community Seed Bank at UC level
- Regular surveillance of Irrigation water supplies
- Close coordination with Meteorological Department & other stakeholders for weather information.
- Testing, functioning and pre-positioning the available machinery.

**II. During Disaster**

- Immediate mass awareness and update of situation
- Arrangements for relief & temporary shelter camps in canal rest houses
- Vigilance for protection of agriculture crops.
- Immediate activation of machinery and equipment.

**III. Post-Disaster**

- Assessment of damages & needs of affected crop area and submit to DDMA
- Assistance in repair & rehabilitation of Irrigation Systems.
- Timely compensation to affected farmers
- Mass awareness campaigns regarding epidemics & diseases to crops
- Inform the affected population regarding the land use and crop management on damaged/devastated areas.

## 12.4 Livestock and Fisheries Department

**I. Pre-Disaster**

- Estimation of possible damage
- Mass awareness regarding precautions
- Close coordination with agriculture, irrigation, meteorological department and other stakeholders.
- Vaccination of livestock.
- Stocking of fodder and vaccines

**II. During Disaster**

- Update local communities of ongoing situation.
- Provide livestock vaccination
- Arrangements for relief and transportation of livestock.

- Provision of fodder for livestock in affected area.

**III. Post-Disaster**

- Assessment and submission of damages and need of affected livestock to DDMA
- Timely compensation to affected livestock owners
- Mass awareness campaign regarding epidemics & diseases to livestock
- Promoting good security practice to both staff and visitors by making use of internal communication systems, posters, message boards and newsletters;
- Adopting effective and lawful staff screening processes during recruitment;
- Providing staff training in security practices;
- Exercising all staff in security scenarios;
- Self-initiated security penetration and breach testing;
- Sharing information with staff about security breaches;

## 12.5 Planning and Development Department

**I. Pre-Disaster**

- Gathering statistical data regarding possible damages and recovery needs from all relevant departments
- Plan and identify potential resources
- Facilitation to other department in planning

**II. Post-Disaster**

- Gathering statistical data regarding actual damaged and recovery needs from all relevant departments
- Plan and Identify potential resources
- Facilitate other departments in planning and execution of rehabilitation in cost effective manner
- Coordinate with all line departments

## 12.6 Revenue Department

**I. Pre-Disaster**

- Assessment of high risk prone areas and estimation of possible damage and needs for recovery.
- Arrangement of financial resources.
- Identification of high grounds for establishment of tent cities.

**I. During Disaster**

- Establish relief distribution centers/camps and accept relief donation/relief support
- Timely release of funds to DDMA.

**II. Post-Disaster**

- Assessment of damages to industrial/business, crops and livestock and settlement of applicable taxes accordingly.
- Support DDMA in conduct of authentic damage assessment and compensation need.

## 12.7 Police Department

**I. Pre-Disaster**

- Information dissemination through "15 helpline service" to local residents
- Deploying and giving security cover to government agencies, which are working/preparing for the monsoon season in areas where law and order is not good.

**II. During Disaster**

- Providing easy access and security to rescue and relief teams.
- Maintain law and order and divert traffic on alternative safe routes as and when necessary.
- Maintaining law and order and provide security to relief stockpiles and camps.

**III. Post-Disaster**

- Ensure security to workers of NGOs/INGOs
- Provide security in unsafe areas
- Facilitating institutions/NGOs/INGOs, which focus on rehabilitation activities.

## 12.8 Civil Defense

**I. Pre-Disaster**

- Information sharing regarding technical and personnel expertise with DDMA.
- Conduct training for volunteers in first aid & other activities
- Effectively train & mobilize volunteers and initiate mass awareness regarding necessary first aid rescue activities

**II. During Disaster**

- Deployment of volunteers at the disposal of DDMA for Rescue, Evacuation and initiated basic first aid.
- Communicate to DEOC any additional resources required for performing rescue and evacuation activities
- Taking precautionary measures to stop fire incidents in camps and perform firefighting in emergency.
- Management of relief camps where required.

**III. Post-Disaster**

- Identify gaps and make plan to overcome weaknesses
- Assisting District Administration and other Line Departments in Rehabilitation works

## 12.9 Civil Society and Private Sector Response[51]

The response of civil society organizations and the private sector to floods should be rapid and extensive. Local NGOs, will work extensively with the Government to provide emergency relief support provisions which include ration packs, water purification kits and tablets, shelter items (including tents, blankets and mosquito nets), sanitation kits and hygiene supplies, doctors and medical supplies, mobile and basic health care units especially for women and children. A particular focus will be placed on healthcare services to avoid the spread of water- borne infections and other disease and to provide basic health care services. Media on their part will cover the event extensively and play a significant role in raising awareness and mobilizing local and international resources for the disaster. Individuals and organizations from the private sector, both from Pakistan and the global community will contribute significantly to the flood relief effort alongside the government and donor community.

## 12.10 Scouts

**I. Pre-Disaster**

- Nominate the scouts, which can be trained to handle flood emergencies
- Training will be imparted in the scouts regarding boat handling and first response to the affected during the emergency.

**II. During Disaster**

- Trained scouts will be deployed/placed at the disposal of Deputy Commissioner
- The scouts will perform the duties as per training and will report to respective Deputy Commissioner

**III. Post-Disaster**

- The trained scouts would continue to impart the training in other scouts and volunteers in the district.

## 12.11 Standard Operating Procedures (SOPS)

- The Deputy Commissioner shall keep close liaison with all departments like Local Government, Health, Agriculture, Civil Defense, Irrigation, Works & Services, Education & Literacy, Police & other Law Enforcement Agencies. Meetings in this regard are to be held on regular basis with concerned departments and minutes are to be shared with DDMA.
- If there is likelihood of heavy rains, flood emergency would be declared in the District and all government functionaries and NGO's would be kept on high alert.
- Control rooms would be established at District and Taluka level in the offices of the Deputy Commissioner, Assistant Commissioner, Qanoongo (Revenue) and all other line departments during the emergency. These control rooms shall function round the clock.
- The Executive Engineer Irrigation will establish round the clock control room in his/her office for making liaison with all concerned & activate contingency plan of the department.

[51] Government of Sindh Rehabilitation Department Provincial Disaster Management Authority, 2012. Sindh Provincial Monsoon/Floods Contingency Plan, Karachi: Government of Sindh

They shall identify the vulnerable points of the irrigation canals and intimate DDMA. Executive Engineer will be in touch with DDMA and the Meteorological Department and inform the concerned agencies about any development emergency. He/She will make special arrangements for watching and patrolling of vulnerable points.

- Immediate arrangements for necessary machinery, sand bags and other material to be used for strengthening of embankments of canals and plugging breach shall be ensured and availability of communication network must be made at all vulnerable points.
- The Executive Engineer Irrigation shall ensure regular, timely and proper de-silting of all canals, distributaries, drains, sub-drains and submit a certificate to his/her higher authorities with an information copy to DDMA.
- The Deputy Commissioner shall ensure activation of Central District Control Room and already established control rooms at each Qanoongo (Revenue) Offices round the clock, under the supervision of Assistant Commissioner concerned. They shall also ensure preparedness at proposed relief camps and ensure immediate evacuation of people residing in low-lying areas to safer place / relief camps, if required. He/She shall also make immediate arrangements for the availability of sufficient quantity of relief material like food, blankets, tents, plastic sheets etc.
- The Deputy Commissioner shall constitute Supervisory Committee for relief works at district level.
- The Deputy Commissioner must further ensure that special attention is given to disabled people, women and children and extra ordinary measures are taken for such purpose.
- The Deputy Commissioner shall nominate the Assistant Commissioner as focal person to coordinate with the Taluka and Town level local council for drainage of accumulated rainwater.
- The Assistant Commissioner shall be focal person in Taluka for the entire operations of rescue and relief. He/She must ensure the respective arrangements for tractor trolleys and labor in coordination with Civil Defence, Boy Scouts Association and Police Department if needed and mobilize the village staff in the pre-and-post emergency work. He/She shall also ensure proper distribution of relief material among the actual needy persons.
- The Executive Engineer Irrigation Department shall ensure availability of bulldozers, excavators and earthmoving machines in sufficient quantity and in proper working condition in case of emergency.
- The Director Agriculture shall arrange for protection of standing crops from damages and diseases that may be caused from the stagnant rainwater in the fields. He/She shall manage required machinery from mechanical wing and must have the inventory of such machinery and equipment.
- The Deputy District Officer Livestock and his/her staff shall ensure safety of livestock from flood diseases and losses and Veterinary Officer shall ensure regular and timely vaccination of cattle in the district. They shall make all necessary arrangements for fodder for the livestock to be shifted from marooned areas.

- The Deputy Controller, Civil Defense should ensure the enrolment of volunteers as early as possible in order to avoid any chaotic situation during emergency. He/She will continuously remain updated of weather forecast reports and with meteorological departments and will arrange for warnings in emergency through sirens, loudspeakers and media at Taluka and town level. He/She shall ensure presence of the volunteers and scouts for rain relief and rescue activities in case of any emergency.
- The Deputy Director Food shall ensure availability of sufficient stock of wheat and other grains and shall coordinate with Deputy Commissioner for supply of food grains from local food grain dealers in case of need. He/She will also ensure that no stocks of government wheat, placed at depots, are damaged due to water accumulation, fire or rioting.
- The Divisional Engineer Telephone should ensure full function ability of telephones all over the district and provide assistance to all departments on demand at the time of need.
- Continuous supply of gas and proper safety of gas lines in the district must be ensured. Immediate repair work should be performed in case of any damage to the gas lines.
- The Deputy Commissioner shall ensure mobilization of the NGO's and business community in the rescue and relief activities in case of emergency and shall depute volunteers on different emergency tasks.
- The Regional Director Information shall keep close liaison with all control rooms of the district to provide correct and exact information to media regarding emergency. He/She shall also arrange briefings about the latest situation in case of emergency.
- The Red Crescent Society and other welfare associations and NGO's of the district shall provide food packets and other required material to the affected persons in relief camps in case of emergency.
- Proper arrangement for lifting of trees fallen due to heavy rain and gusty winds from the main roads shall be made by the Executive Engineer Provincial Highways department.
- The in charge Utility Store Corporation shall ensure the availability of sufficient stock of edible items in case of need.
- The Revenue Department shall also conduct the survey of any loss of life, houses, cattle, standing crops and other infrastructure after the disaster. In the event of the highest degree of emergency, Pakistan Army may be requested to help the district administration in rescue and relief operations.

## 12.12 Implementation and Monitoring

### I. Indicators

- **Quantitative Indicators**

OECD (2002) defines an indicator as a ''quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor.'' Quantitative indicators are numerical representations of complex phenomenon. Quantitative

indicators can be useful in determining the level of achievement at all stages of a resilience project and can even be used to measure the strength of resilience characteristics, though this is better attained by using qualitative indicators[52].

**II. Qualitative Indicators**

Qualitative indicators evaluate the quality of a plan using subjective data (relying on people instead of instruments). Many qualitative indicators use a 1-5 scoring system, however, this is not the only way; Sovacool (2012) points out that indicators could ‘‘rely on a simple scoring technique of ‘positive,’ ‘negative,’ or ‘neutral,’ as in a given metric can worsen, improve, or stay the same over time.’’

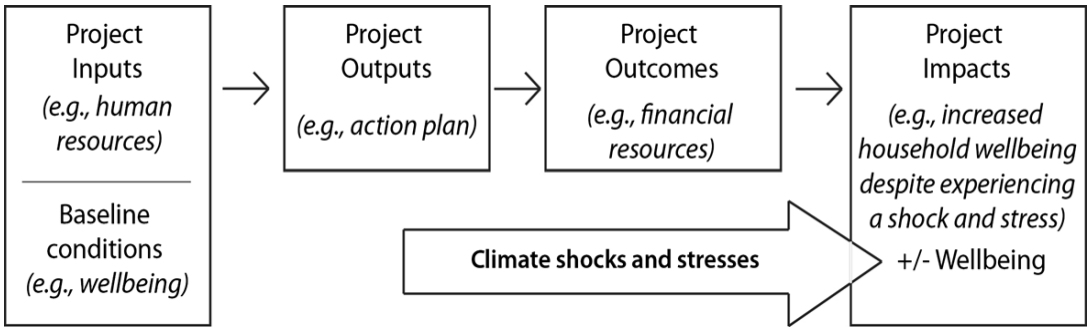



*Figure 12-1 : Four phases of a resilience initiative, and the timing of baseline and post-shock measurements of wellbeing (Brown, et al., 2018)*

These qualitative values can be used to create baselines and/or to indicate that a particular resilience impact/outcome has been achieved. The challenge with a qualitative indicator that uses a scale from 1-5 is that the scale should be created based on criteria that is fair and well informed.

**III. Process Indicators**

There are many processes that underlie resilience planning and action, and process indicators outline the extent to which these processes have been undertaken. Moser and Boykoff (2013) write that given the challenges (e.g., attribution) in adaptation and resilience measurement, ‘‘tracking and evaluating the adaptation process—with all of its individual components (e.g., assessment, planning, stakeholder engagement, decision-making, implementation, institutionalization, monitoring, and social learning)—becomes at least as important as the questions of success in outcomes’’.

An example of a process indicator is the level of participatory involvement in resilience decision making. If one’s definition of resilience encompasses participatory involvement, then the extent to

[52] Brown, C., Shaker, R. R. & Das, R., 2018. A review of approaches for monitoring and evaluation of urban climate resilience initiatives. Environment, Development and Sustainability, 20(1), pp. 23-40

which this has been applied can be used as a process indicator. This can be assessed qualitatively (on a scale of 1-5) or quantitatively (number of stakeholder types represented).

### IV. Impact Indicators

Determining the impact of resilience initiatives is a bit difficult, as these impacts are often difficult to interpret or understand and can often not be measured until after a disaster, or at least until the slower onset effects of climate change have started to occur (e.g. sea level rise). One approach could be to assess the process and outcome indicators and inferring from the results that climate change resilience has been reasonably ensured.

Wellbeing and financial losses after a disaster are the two most important climate resilience indicators that can help to assess the success of climate change resilience initiatives. By evaluating these indicators, evaluators can gain an insight to the effect of climate change resilience initiatives on the community. By assessing these two indicators, a city can determine whether it has the adaptive capacity to remain resilient in the face of shocks and stresses resulting from climate change.

### V. Identified Indicators[53]

#### a. Collection of Data to Perform Vulnerability Assessments to Floods

- Number of exposure and socio-economic datasets on current exposure to floods at district level.
- Geographic coverage of all datasets (% of all exposed areas).
- Number of reports detailing data collection and summarizing information.
- Number of policy and technical documents based on datasets and modeling scenarios.

#### b. Building Technical Capacity to Generate Vulnerability Assessments to Floods

- Number of technical staff trained to acquire competence in computer modelling techniques and able to perform Vulnerability Analysis (VA).
- Average staff performance on end-of-training comprehension tests.
- Proportion of ministries using datasets to generate vulnerability analysis or proportion of sectors covered by analysis at district level.
- Number of policy and technical documents incorporating results from VA's.
- Proportion of government investment/program documents using results from VA's as a priority-setting or screening tool.

#### c. Institutional Framework and Mechanisms to Support Adaptation and Adaptive Capacity

- Number of laws and regulations created or amended to clarify land and carbon property rights.
- Existence of a dispute resolution mechanism.
- Number of materials (presentations, briefs, papers) developed for legal literacy programs.

[53] McCarthy, N., Winters, P., Linares, A. M. & Essam, T., 2012. Indicators to Assess the Effectiveness of Climate Change Projects, Washington DC: The Inter-American Development Bank

- Number of people participating in legal literacy programs.
- Number of individuals and community groups participating in Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+) financed projects.
- Average number of days and money spent in REDD+ project preparation.
- Total value of REDD+ projects and value per participant.
- Percentage reduction in production variability from forest-based activities and/or farm production at the forest margins.
- Number of early warning and health hazards dissemination outlets, by type of outlet (e.g. radio, newspaper, and website), geographic coverage, and level of disaggregation of system information (e.g. district-specific).
- Percentage languages used in dissemination materials of total number of languages spoken in district.
- Number of extension materials containing climate change-relevant materials.
- Percentage change in government budget allocations towards climate change information dissemination.
- Percentage reduction in property damage.
- Percentage reduction in mortality and in disease prevalence for diseases related to weather patterns (e.g. malaria, dengue).

**d. Investment in Projects that Directly Support Adaptation and Improve Adaptive Capacity**

- Percentage increase in the number of seed varieties developed, documented and made available in the market.
- Documentation of seed varieties and their characteristics.
- Documentation of procedures and partnerships created to transfer seeds either directly to farmers or to market traders.
- Percentage increase in number of seed varieties available in rural markets.
- Number of climate resistant seed varieties available in the market and percentage increase in use of climate resilient seed varieties.
- Percentage crop yield improvement in years of climate extremes.
- Percentage greater performance in average crop yields.
- Percentage decrease in proportion of rural and urban populations malnourished.
- Number of energy facilities built or retrofitted to withstand greater range of climate shocks.
- Percentage of total capacity built or retrofitted by type of facility and by “threat” level identified in vulnerability analysis.
- Percentage decrease in monetary damages to energy facilities due to climate extremes (adjusted for degree, or extent, of climate shock).
- Percentage decrease in customers losing access to energy due to climate shock-induced power failures.

## 12.13 Responsibility of Plan Implementation

**Table 12-1: Authorities Responsible for Implementation**

| S# | Department | Designation |
|---|---|---|
| 1 | Administration | District Commissioner |
| | | Assistant District Commissioner-I |
| | | Assistant District Commissioner-II |
| 2 | Irrigation | District Irrigation Officer |
| 3 | Agriculture | District Agriculture Officer |
| 4 | Health | District Health Officer |
| 5 | Education | District Education Officer |
| 6 | Social Welfare | District Officer |
| 7 | Livestock | District Officer |

## 12.14 Monitoring and Evaluation[54]

There are three ways to monitor and evaluate climate change adaptation and resilience:

- Measuring against project objectives
- Measuring against baselines
- Measuring against emerging understanding of good adaptation measures

### a) Measuring against Baselines

Baseline comparisons can be used to monitor and evaluate the effectiveness of climate resilience initiatives. During this process, an initial measurement is taken (e.g., number of civic organization per 10,000 people). This measurement is then taken at different stages of the project to measure the effectiveness of strategies used to improve that particular indicator. This approach could be applied to resilience characteristics (e.g. flexibility). In order to do this, a more qualitative assessment (subjective scoring from 1 to 5) could be employed to create a baseline value.

### b) Measuring against Definitions

Relatively straightforward definitions exist for climate adaptation, but in the context of resilience – with its emphasis on system level interaction and inherent qualities – this approach can prove to be much more difficult. How you define resilience is a key determinant in how the monitoring and evaluation approach will be adopted. For example, if resilience is defined as a decrease in post-

[54] Brown, C., Shaker, R. R. & Das, R., 2018. A review of approaches for monitoring and evaluation of urban climate resilience initiatives. Environment, Development and Sustainability, 20(1), pp. 23-40

disaster recovery time, specific indicators will be evaluated which would not be useful when concerned with the resilience characteristics with cities.

**c) Measuring against Project Objectives**

As mentioned above, the objectives of a resilience program differ depending on the way resilience is defined and also at which phase of the project the assessment is being made. Alexander et al. (2016) define process as the ''inputs, throughput and outputs of the decision-making process,'' outcomes as ''the implementation of the outputs from the decision-making process'' and impact as ''the resulting effect of the decision-making process and outcome''. Similarly, Spearman and McGray (2011) use the following sequence: inputs, initiatives, outputs, outcomes, and impacts. Monitoring and evaluation can take place at each of these temporal locations (i.e., process, outcome, impact). Many people also advocate that monitoring and evaluation be carried out throughout the duration of the project rather than just at the beginning and the end of the project.

**d) Key Principles of Monitoring, Evaluation and Reporting System[55]**

- **Use of Mixed Methods**

  The monitoring and reporting system combines quantitative and qualitative methods to collect and analyze data, and generate knowledge and lessons in implementing the plan.

- **Ownership**

  District focal points for each sector (mentioned in the table above) are responsible for collecting, aggregating and submitting their reports annually to the District Administrative Unit.

- **Stakeholder Engagement**

  Empowering stakeholders and ensuring their active contribution to the monitoring and reporting process is a key feature of the monitoring and evaluation system. The monitoring and reporting system is rooted in the desire to maintain a programmatic approach in the implementation of the investment plans through projects and programs. It aims to engage the stakeholder groups, including government institutions at national, sub-national and local levels, as well as civil society, local communities and the private sector, in discussing progress with the implementation of the monitoring plan. The monitoring and reporting process will also be used to share lessons learned and discuss the challenges encountered with a view to identify feasible solutions.

- **Learning by Doing**

  Monitoring and reporting is an iterative learning process. It is expected that the quality of monitoring will improve over time as the authorities gain experience.

[55] Williams, A., 2016. Options for Results Monitoring and Evaluation for Resilience-Building Operations, Washington DC: World Bank Group

# 13. URBAN LAND MANAGEMENT

## 13.1 Introduction

Urban areas throughout the developing world are experiencing a problem in the supply of adequate and affordable serviced land to meet the housing needs of their rapidly expanding urban populations. As a result, low income groups who are mostly denied access to land due to shortfall in supply are forced to either seek for residential land through illegal means or to crowd into existing low income settlements, creating slum conditions. In Sindh, the shortfall in land supply arises not from the lack of virgin land but partly from the lack of resources, capacity to service the lands and land ownership by landlords and make them ripe for development and also partly from the use of ineffective and inappropriate land and land use policies and practices.

"Land management" is defined as an activity on the ground, using appropriate technologies in the respective land use systems. It is known by different names in different parts of the world; basically all are land management tools. In Pakistan land management is not being practiced till yet because of non-absence of policies / framework. Strong land owner opposition to forcible land acquisition, combined with extremely limited fiscal capacity has left the urban local bodies (ULBs) with very few options to develop well-planned and serviced urban land. Land pooling and reconstitution (LPR) is a tool that addresses both these issues by allowing the land owners to share the gain in the land value post provision of infrastructure and services. In lieu, the land owners pay betterment charges and contribute a part of their land to fund the infrastructure and services.

## 13.2 Goals

As most of towns in Sindh strive to become centers of global production, trade and development, they are increasingly concerned with improving their attractiveness for foreign direct investment and employment generation. For example, towns must have efficient spatial structures, adequate infrastructure and urban services, affordable housing and healthy environments. Effective urban land management is required to promote urban regeneration and development of new industrial and commercial districts, investments to upgrade and expand critical infrastructure systems, programs to enhance and protect the environment, and initiatives to upgrade social overhead capital (housing, education, healthcare).

## 13.3 Objectives

To implement these initiatives for Tando Allahyar, there is a need to develop urban land management strategies to provide land for industrial and commercial development, to facilitate the formation of public-private partnerships, and to finance the provision of infrastructure and social overhead capital investments. Unfortunately, in many cities around the world such strategies do not exist and foreign investment is either stifled or, if it does take place, causes significant adverse side effects.

Cities and towns are crucial to the economic well-being of Sindh. For this, it is imperative that its cities and towns are transformed and pressures of new growth are dealt with so that they are more livable, efficient, and environmentally sustainable. Only then will the rapid pace of economic growth that Sindh is undergoing be sustained and the targets of environmental sustainability achieved. To manage the transformation of Sindh's cities and towns and effectively manage new growth requires effective urban planning protocols, processes, and institutions underpinned by effective legislation. To effectively manage the new growth implies that the agricultural land at the periphery of the cities and towns or smaller settlements that are not yet "urban" is transformed to be made suitable for urban or non-agricultural uses. This essentially means that the irregular landholdings and plots will have to be given regular shapes; they must be ordered; each plot must be given access; infrastructure services such as water supply and drainage must be provided; land must be appropriated for providing roads, parks, social amenities, and low-income housing, development controls must be prescribed to result in a good quality-built form and levy development or betterment charges to offset the cost of developing the physical and social infrastructure. But most importantly, all of this must happen in a timely and such manner that it is acceptable to the "landowners" to avoid conflict in the growth management process.

## 13.4 Urban Land Management in Tando Allahyar

Due to absence of provincial policy / framework for utilizing Urban Land especially in District headquarter towns, planners / development authorities have not carefully assessed the land use and transportation impacts of foreign investment. Due to non-existence / less effectiveness of Development authority mechanism, schemes / projects in private sector faces low exposure due to non-availability of basic facilities and monitoring mechanism by approval authority. As a result traffic congestion and infrastructure problems with the water supply and sewerage treatment are mounting.

Getting access to land for factories and commercial facilities is problematic, particularly in agricultural rich fertile land. Decades of inefficient allocation of land for industrial uses have literally blighted / dis-courage agricultural activities in the region. Unfortunately, a lack of clarity over land rights, corruption and bureaucratic inertia are impeding redevelopment. To compound matters, land use plans in many transition economy towns have not been planner to reflect the new land use requirements necessary to support post-industrial development.

To effectively exploit the benefits of inward investment flows and to ensure that social and environmental goals are met, the public sector needs to take the lead in planning and formulating urban land management strategies to promote sustainable urban economic development.

## 13.5 Land Pooling and Reconstitution

Simply put, in LPR, a number of small holdings are pooled together, a part of land is taken from each plot for provision of infrastructure and public facilities and the rest returned to the original land owners. It is basically a land management tool and is used all over the world under different names with slight modifications in their working.

**Land Management Techniques**

The strategies available for access to urban land could be through Guided land development for large areas; Land pooling and reconstitution; Land reconstitution / redevelopment; Acquisition for public purpose under the Land Acquisition Act, 1894; Joint Sector Model of land assembly and development; Transferable Development Rights (for built up areas); Saleable FAR and mixed use concept (for regeneration of inner city); Land Pooling and Redistribution Scheme.

### A. Land Acquisition Act, 1984

In Pakistan, the Land Acquisition Act, 1894 gives the right for Government authorities to acquire parcels of land for the implementation of development projects. The origin of the practice of land acquisition by public entities in Subcontinent goes back to 1824, when the British Government of India instituted regulations to facilitate urban land public acquisition from private owners. In fact, the obligation for owners to give up their land had to find a legitimate justification. The initial reason advanced to acquiring the land against their will was the need for constructing public buildings in Bengal provinces. These regulations enabled the British government to take possession of the land for the construction of roads and canals. From 1850 on, the scope of these laws was extended to other provinces in order to facilitate the operation of further infrastructure projects such as railways.

The Land Acquisition Act was edited in 1894. It harmonized and consolidated previous regulations into one single act, applicable within the whole British India. After Pakistan's independence in 1947, the Pakistan Government started using this act as a tool to purchase land at a lower price than that on the regular market, as it was meant to be used in the public interest. Several amendments have been made on this act, but its procedures have not changed.

### B. Land readjustment / pooling

Land readjustment / pooling Land re-adjustment is a process whereby a public authority assembles numerous small parcels of raw land without paying compensation to the owners. The authority then sub-divides such assembled lands for urban use returning most of the building sites to the original owners in proportion to the value of their land contribution and permitting them the right of alienating such sites. The authority retains a portion of the assembled lands, applying them partly to provide civic amenities such as roads, parks and gardens or schools, and the remainder land for public sale to

recover the cost of development. Thus, land re-adjustment acts as tool to achieve unified control over large areas of land and as an instrument of financing public service installations in the process of planned urban growth.

**C. Guided Urban Development**

The concept of Guided Urban Development (GUD) emerged in response to ad hoc, uncontrolled urban development with no regard to infrastructure services. It also aims to secure a limited availability of urban land for economically weaker sections. GUD has been practicing in India and developing world. The objectives of the scheme are as follows:

- Ensure provision of serviced plots for low income families at affordable prices (approximately 75% of total plots to be reserved for EWS / LIG); and
- Provide incentives to the land owner / private developer to participate in the provision of low income shelter by guaranteeing fair return on investments (profit of 20-30%).

## 13.6 City Survey

City survey is very important to manage land records for city. City survey will help to resolve present hassle in property transactions besides impeding planning & development. It will also help to resolve several issues i.e. Verification of ownership & Land grabbing issues respectively. Therefore it is suggested to conduct city survey & deal as separate project for Tando Allahyar.

## 13.7 SWOT Analysis and Need Assessment

| Strength | Weakness | Weakness | Threats |
|---|---|---|---|
| **GOVERNANCE** | | | |
| **Planning Actors** | | | |
| 1. Politicians<br>2. Existence of Local government<br>3. Public Health Engineering Department | 1. Lack of co-ordination among departments.<br>2. Weak technical support of government departments.<br>3. Weak financial base of departments.<br>4. Absence of development authority.<br>5. Shortage of technical staff, town planners, urban designer and policy makers at SMC, Regional Office of SBCA)<br>6. Overlapping of administrative functions<br>7. Need based ad-hoc planning system (day-to-day basis) | 1. Strengthen the institutions, responsible for planning and execution<br>2. Immediate preparation of overall urban development strategy<br>3. Detailed land use zoning plan<br>4. Sectoral development plans<br>5. Detailed subject plans to regulate with density development.<br>6. Enhancing the role of local government on sustainable basis. | 1. Inaccurate funding in development projects.<br>2. Wastage of local resources<br>3. Infrastructure development of poor quality, non-standard infrastructure.<br>4. Failure to provide technical support on issues required innovation.<br>5. May give birth to unwilling political interference and hidden interests based on nepotism and discrimination. |
| **Coordination of Public Agencies / Department** | | | |
| 1. Town Committee / Taluka Municipal Administration<br>2. Politicians in charge<br>3. Participation of Sindh Building Control Authority (SBCA) | 1. Weak co-ordination mechanism.<br>2. Lack of information sharing between line departments. | 1. Preparation of local co-ordination standard procedures through policy frameworks.<br>2. Organizing events to make strong coordination between different departments. | 1. Week coordination may give birth to poor governance.<br>2. Political interference |

| Strength | Weakness | Weakness | Threats |
|---|---|---|---|
| **Local Council** | | | |
| 1. Availability of Town Committee. | 1. Not actively pursuing the stated objectives. | 1. With awareness and training of councilors the local councils can be more effective.<br>2. Workshops and meetings can enhance the coordination as well as clear the vision about development perspectives. | 1. Confusion and chaos in the local development affairs at present until local bodies are established. |
| **Financial Resources** | | | |
| 1. Institution and system are in place.<br>2. Regular provincial grants available for development project.<br>3. Programme based medium-term donors funding. | 1. The council does not affectively generate funds.<br>2. Less efforts offer by local councils for revenue generation through available local resources.<br>3. High dependency on provincial grant.<br>4. Lacking capacity in collection and financial management.<br>5. Very low capacity for capital investment in development projects. | 1. Self-sustainable financial system needs to be effectively introduced.<br>2. Development of self-reliance and suitable financial model.<br>3. Resource generation through PPP.<br>4. Exploitation of local potentials for resource generation.<br>5. To curb mismanagement and corruption. | 1. Poor maintenance of infrastructure relating utility services.<br>2. Political pressure and financial leakages.<br>3. Lacking M&E and implementation of strict accountability measures during audits. |

## Proposed Public Administration Landuse for Tando Allahyar Town

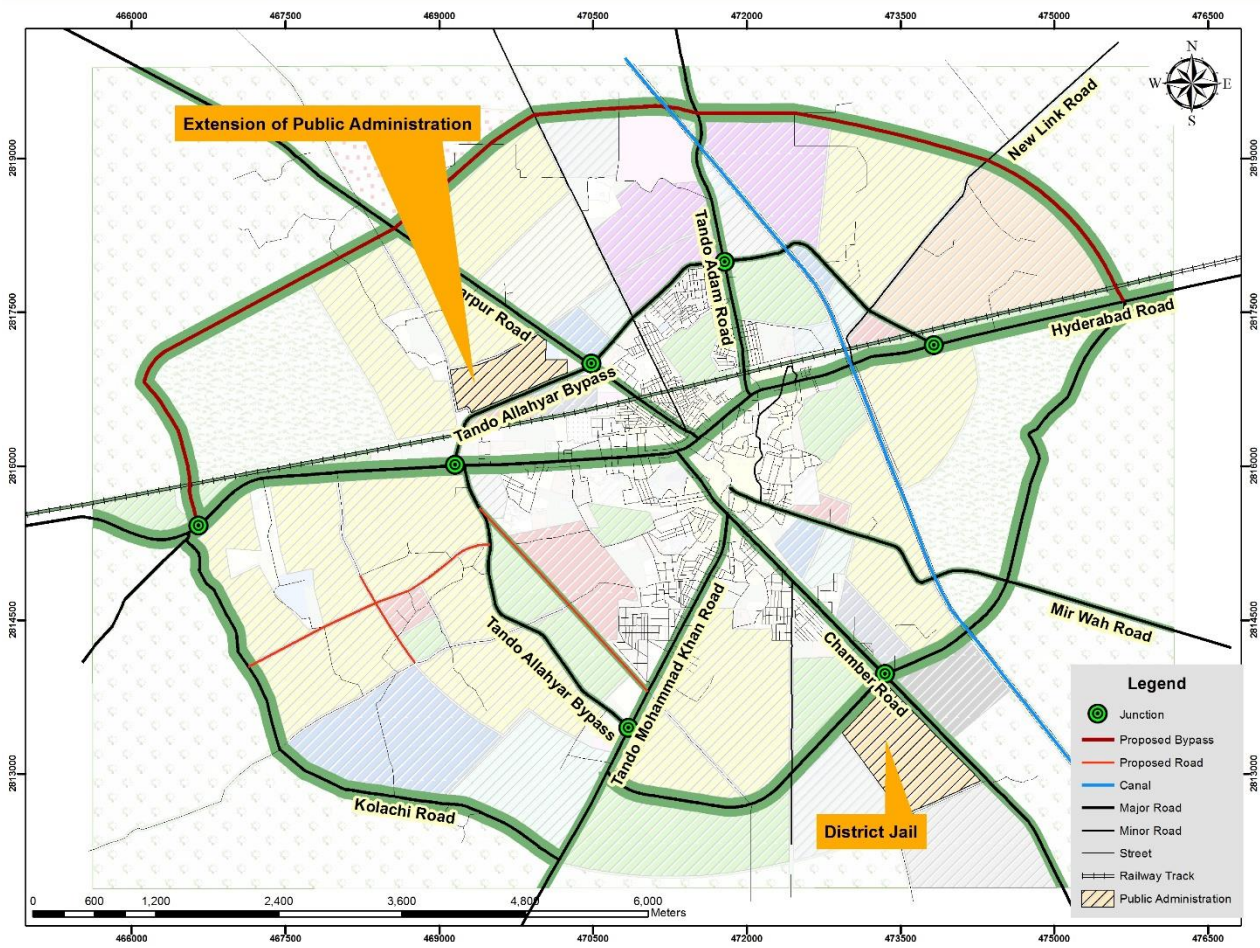



***Figure 14-13-1 Future Administration Proposal of Tando Allahyar***

# 14. IMPLEMENTATION STRATEGY

This part of the report aims to provide an implementation framework for various development proposals recommended in 'Strategic Development Plan' to drive future growth of Tando Allahyar DHQ town up to 2037, under the present governance framework of Government of Sindh.

## 14.1 Process of Implementation

The implementation of development plan is basically the process of prioritizing, phasing, coordinating, budgeting, scheduling, monitoring and making adjustments. There are number of management systems and charting procedures available to help a city manager to control this process. Issues that must be addressed in this regard are:

- Determine priorities within and among the sub plans
- Determine the phasing or sequence of activities among the sub plans.
- Address timeframes and budget availability
- Creating master schedule of activities with a progressive cost table so that the program can be appropriately expanded or contracted to meet implementation contingencies and budget fluctuations.
- Assign the various activities to be undertaken by qualified managers.
- Establish a timely monitoring and report system to keep the city officials and the public informed of progress and activities.

## 14.2 Implementation Agency

The office of the Deputy Commissioner and in case of Local Bodies/Local Government, the Chairman of district council and Mayor of metropolitan city will be the key implementation agency to execute Strategic Development Plan Tando Allahyar 2037.

The Government of Sindh would take responsibility of implementing various development proposals by utilizing its maximum resources and by engaging various public offices of government of Sindh, established in Tando Allahyar. The concerned agency must ensure that the overall process must go after following themes of implementation process.

*a)* ***The overreaching theme of the implementation of Strategic Development Plan Tando Allahyar is:***

- Consultation with stakeholders during implementation at all levels.
- Decentralize decision making to the greatest extent possible.

- Promote transparency and accountability of decision making and implementation enforcement.
- Rationalize impacts where necessary;
- Ensure compensation to affected communities
- Enhance the quality of infrastructure provisions, promote utility services opportunities, and focus facilitating poor segments of society.

b) ***The principals that implementation process will follow:***

- The overall implementation process to be carried out in coordination with Town Planning and Urban Development Standards (Frameworks) in which redevelopment will be phased to prioritization;
- The implementation process will be based on updated planning codes and regulations;
- Special consideration will be paid to implement planning standards relating to disaster (Drought) preparedness in all development proposals/projects;
- Facilitate communities, government machinery, and other organizations of community to participate in overall implementation process;
- Educate stakeholders for technical assistance;
- Be comprehensive, coherent, and coordinate to avoid errors through continuous monitoring and evaluation
- Arrange supple of financial resources

## 14.3 Legal Frameworks

Local governance agencies dealing with any development proposal must ensure that all development related activities and their approval consent should be carried out in accordance with urban planning statutory frameworks of government of Pakistan operational at all government level levels. This includes all legal frameworks substantiated through the relevant articles of constitution of Pakistan and the primary act (LAA 1984) governing land acquisition and compensation.

a) ***National Level Policy Frameworks***

The constitution of the Islamic Republic of Pakistan passed on the 10th April 1973 and as modified thereafter, is the supreme law of Pakistan Government. This constitution provides legal cover to all laws and acts, particularly those embedded in chapter-3 pertaining with land acquisition, development and compensation.

### b) *State level Statutory Frameworks pertaining to planning and development Control*

On 14th Feb 2011, the government of Sindh notified the extension of the jurisdiction of Karachi Building Control Authority to the whole of Sindh. The five Regions of Sindh Building Control Authority notified by the Government of Sindh are: **Karachi, Hyderabad, Mirpurkhas, Sukkur & Larkana,** having the Head Quarter **Karachi. Thus, any development activity within juridical boundary of these districts must be carried out in accordance with the primary planning instrument ' *Sindh Town Planning and Building Control Regulation'*.**

### c) *Local Planning Instruments*

There is variety of regulations dealing with municipal services offences and penalties (Fines) in case of violation have been constituted in Schedule-VI (Section 139) 'Offences under the Act' Part-1 of Local Government Act-2013 (Third Amendment 2016) of Sindh Government.

*In this regulation, various well defined public activity management and control regulations dealing with Public Health Safety, Land use Planning, Development Control, Encroachments, preparedness of safety measures from Natural & manmade disaster, quality of Drinking water, Solid Waste & Waste Water generating though multiple activities, Preservation of Heritage Sites, Open Space management and associated penalties, in case of violation, have been defined in detail.*

### d) *Other relevant planning and design standard instruments*

There are varieties of other documents that support assessment of development proposals prior to implementation. e.g. 'National Reference Manual' - Ministry of Housing and works, Environment and Public Affair Division, etc.

If regularization requirements of any of development proposal is beyond the capacity of regularity frameworks mentioned above, the concerned agency dealing with development/implementation process in Tando AllahYar may develop their own regulatory frameworks/ building codec's to regularize the status of development with consent of local/provincial government authorities, if necessary.

## 14.4 Institutional Enhancement

While implementing the Strategic Development Plan "SDP', the respective Provincial and District Government may seek technical assistance from all the line department i.e. DUP&SP, Local Development Authority, Municipal Corporation, secretariat of Commissioner and Deputy Commissioner.

The *'Urban Management Unit*' will mainly consist of urban planners supported by other technical staff; architects, project managers, engineers, finance officers and any other technical staff expert in their relevant fields.

The *'Urban Management Unit'* shall supervise and coordinate respective urban developers involved in development activities, conduct monitory audits, preparer evaluation and impact reports and will report to the head of respective governance agency.

Development authorities will be responsible for implementing new approved town planning and building codes with the assistance of office of head of respective governance agency. The office of district coordinator will be responsible for the overall coordination and monitoring and will provide support for development/redevelopment activity from federal to district level.

The district Urban Management Unit would also facilitate the office of district coordinator/ deputy commission for all development/ implementation related (a) needs identification (b) revision of annual plans (c) coordination (d) financial management and (e) monitoring of all development activities assigned to developers or government departments.

## 14.5 Implementation Schedule

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Balanced Urban Growth** | **1. <u>Land Use Zoning</u>**<br><br>Initially, after construction of railway track in 1906, the city started expanding on both sides of railway track. Later, the construction of 'Canals' created more difficulties to its traditional linear growth pattern and resulted into thickly populated and congested development.<br><br>District headquarter town can be divided into two tracts northern and southern tract. The development in project area shows that the present town centre / CBD originated between the Chamber and Cinema road which is the South side of Hyderabad-MirpurKhas Dual carriageway road.<br><br>Later, city started growing all sides of Hyderabad-MirpurKhas Dual carriageway road and railway track. Mostly public projects established Hyderabad-MirpurKhas Dual carriageway and Tando Adam road longitudinally.<br><br>**2. <u>Development Control</u>**<br>Amendment in Zoning Bye laws<br>Restrict the provision of utility services for approved planned areas<br>Land Use Control especially regularization and formation of Kactchi Abadis.<br>The housing density is quite high in the core urban area of causing congestion and issues of poor light and ventilation (Proposed Vertical growth options)<br><br>**3. <u>Transportation</u>**<br>Strong network of inter and intra city Transport.<br>**<u>Roads</u>**<br>Need Dualization & Rehabilitation of Existing Roads. |
| **Responsibilities to Plan:**<br>Detailed Urban Design Strategy Development Assessment | **Implementation Responsibilities:**<br><br>Public Sector/ Private developers |

| | |
|---|---|
| Impact of property Assessment<br>Environmental Impact Study (EIA,IEE) | |
| **Concerned Agencies:**<br><br>P & D Department Government of Sindh/ District Government/ Line Departments of local Government /Private Developers | **Time of Implementation:**<br><br>Short Term (1 year to 5 Years)<br>Long Term (5 years to 20 Years) |

| | |
|---|---|
| ***Strategy:***<br><br>**Future Transport Sector Development & Improvement** | **Programs/ Policies**<br><br>**<u>(A)Traffic Management Program</u>**<br><br>• Parking restrictions / Charged parking system<br>• Control traffic movement specially cargo Qingqis and Pick-ups<br>• Manage unidirectional traffic flow.<br>• Enforcement of traffic rules<br>• Improved road infrastructure and street furniture<br>• Implementation of traffic bylaws<br><br>**<u>(C ) Congestion Reduction in Core Urban /CBD Area</u>**<br><br>• Designated stands for qingqi / rickshaws<br>• Specified spaces for charged parking system<br>• Alternate route for loading and unloading vehicles<br>• Unidirectional traffic flow pattern<br>• Removal of encroachments from major distributors<br>• Development of infrastructure for pedestrian movement in old precinct. |
| **Responsibilities to Plan**<br><br>• Enforcement of encroachment and road space improvement byelaws<br>• Traffic corridors detailed study<br>• Encroachment Removal & Relocation Study<br>• On Street & Off Street Parking Feasibility Study<br>• Beautification plan | **Implementation Responsibilities**<br><br>International Development and Fund Supporting Agencies/Public Sector/ Private developers |

| | |
|---|---|
| **Concerned Agencies**<br>Provincial Works & Services Department Government of Sindh./ District Highways Department/ Local Municipal Government/District Government/ Private Developers Line Departments of local Government. | **Time of Implementation**<br><br>Short Term (1 year to 5 Years)<br>Long Term (5 years to 20 Years) |
| ***Strategy:***<br><br>**Water Supply System Improvement** | **Programs/ Policies**<br><br>• In the long term, piped water supply system for 100% population by 2037<br><br>• Installation of localize network in the planned housing schemes first and gradually cover the whole population in five year plans.<br><br>• Reuse of treated effluent<br><br>• Implementation of Tariff System for utilities through Water Metering (first for water usage above marginal consumption then in long run for all users).<br>• Construction / Rehabilitation Of Water Supply Network<br>• Improvement of Water Intake Works |
| **Responsibilities to Plan**<br><br>• Need Assessment/Demand & Supply Study<br>• Separate Master Plan for water supply and infrastructure development plan | **Implementation Responsibilities**<br>Public Sector/ Private developers |
| **Concerned Agencies**<br><br>Provincial / Local Government/ Public Health Engineering Department | **Time of Implementation**<br><br>Short Term (1 year to 5 Years)<br>Long Term (above 5 years ) |

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Drainage & Sewerage System Improvement** | • Improvement and reconstruction of existing Combined system of sewerage and drainage (Phase-wise approach of replacing open drains with covered sewers of PE pipes).<br>• Provision of wastewater treatment plant. |
| **Responsibilities to Plan**<br>• Need Assessment/Demand & Supply Study<br>• New Master Plan for Drainage & Sewerage services improvement. | **Implementation Responsibilities**<br>Public sector / Private developers |
| **Concerned Agencies**<br>Provincial / Local Government/ Public Health Engineering Department Municipality (MC) | **Time of Implementation**<br>Short Term (1 year to 5 Years) |

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Solid Waste Disposal System Improvement** | • Immediate designation of walled Landfill *Site* with special attention for hospital waste disposal.<br>• Collection and disposal of solid waste through specialized waste management companies. |
| **Responsibilities to Plan**<br>• Disposal Generation Assessment Study<br>• New Master Plan for Solid Waste Disposal System improvement. | **Implementation Responsibilities**<br>Public / Private Sector |
| **Concerned Agencies**<br>Provincial / Local Government/ Public Health Engineering Department Municipality (MC)/ Sindh Solid Waste Management Company SSWMB | **Time of Implementation**<br>Short Term (1 year to 5 Years) |

| | |
|---|---|
| ***Strategy:***<br><br>**Improving Efficiency of Municipal Committee's (MC)**<br><br>• Municipal Committee | **Programs/ Policies**<br><br>• Acquire the required additional sanitary workers as per requirement.<br><br>• Make Municipal Committee self sufficient<br><br>• Strengthening Municipal Committee's Financial Capacity<br><br>• In long term introduce 4R Solid Waste Management System (reduce-reuse-recycle-reject) |
| **Responsibilities to Plan**<br><br>• Municipal Committee's Progress Assessment Study | **Implementation Responsibilities**<br><br>Public / Private Sector |
| **Concerned Agencies**<br><br>Provincial / Local Government/ Public Health Engineering Department Municipal Committee (MC) | **Time of Implementation**<br><br>Short Term (1 year to 5 Years) |
| ***Strategy:***<br><br>**Improving Fire Fighting Capacity** | **Programs/ Policies**<br><br>• Establishment of fire-stations to accommodate required number of fire vehicles.<br><br>• Establish sub-stations at different locations to ensure short response time for the whole city.<br><br>• Increase service efficiency through number of vehicles, dedicated staff and financial mechanism.<br><br>• To ensure readiness of all vehicles with ample stocks of POL and spares. |
| **Responsibilities to Plan**<br><br>Assessment on Municipality's firefighting potential | **Implementation Responsibilities**<br><br>Public Sector |
| **Concerned Agencies**<br>Tando Allahyar Municipal Committee. | **Time of Implementation**<br>Short Term (1 year to 5 Years) |

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Energy (Gas, Electric Power, Energy Generation through Alternate Resources)** | • Development of alternative energy resources such as wind, solar and bio-gas etc.<br>• To Improve existing infrastructure of WAPDA<br>• Solar street lights project<br>• Energy generation through solar panel system for residential and commercial purpose.<br>• Installation of Gas Network for entire DHQ Town. |
| **Responsibilities to Plan**<br>• Demand and Assessment of various energy resources.<br>• Feasibility study for solar Park<br>• Rehabilitation of solarized street lights. | **Implementation Responsibilities**<br>Public/ Public Private Partnerships |
| **Concerned Agencies**<br>• SSGC-Sui Southern Gas Company<br>• WAPDA<br>• Developers | **Time of Implementation**<br>Short Term (1 year to 5 Years) |

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Health Sector**<br>**Improve access to healthcare facilities & minimize the long journeys to access basic medical facilities** | • Check and balance to accomplished existing health care projects.<br>• Addition of 2,554 beds to achieve the target of 2 beds per 1,000 district population<br>• Hiring of 1295 doctors and paramedical staff to cater future population.<br>• Installation of incinerators. |
| **Responsibilities to Plan** | **Implementation Responsibilities**<br>Public Sector and Welfare Agencies |

| | |
|---|---|
| • Health reforms | |
| **Concerned Agencies**<br><br>State Government/District Health Department.<br>Provincial and District Health Department | **Time of Implementation**<br><br>Short Term (1 year to 5 Years)<br>Long Term (above 5 year) |
| ***Strategy:***<br><br>**Education Sector Strategy** | **Programs/ Policies**<br><br>• Short term plan provision of 256 classrooms at school and college level.<br><br>• Repairing of school existing buildings with furniture<br><br>• Training of teaching staff<br><br>• 3,785 additional classrooms (school and colleges) by 2037 |
| **Responsibilities to Plan**<br><br>• Education Infrastructure Improvement Mater Plan | **Implementation Responsibilities**<br><br>Public Sector |
| **Concerned Agencies**<br><br>Provincial Government/District Education Department. | **Time of Implementation**<br><br>Short Term (1 year to 5 Years)<br>Long Term (more than 5 years) |

| | |
|---|---|
| ***Strategy:***<br><br>**Improving Recreation Sector** | **Programs/ Policies**<br><br>• Repairing of existing recreational facilities and completion of under construction work.<br><br>• Introduce financial mechanism i.e. facility use charges, to generate revenue to make them self-sustaining.<br><br>• Special arrangement for security, parking and alternate route during religious and cultural activities in the city.<br>• Provision of missing facilities in existing Gymkhana |

| | |
|---|---|
| | • Rehabilitation and construction of family parks and playground<br>• Feasibility Study For Conservation/ Rehabilitation Of Heritage Site<br>• Facilitate annual festivals that are being celebrated in this district. |
| **Responsibilities to Plan**<br><br>• Provisions of New Recreation sites | **Implementation Responsibilities**<br><br>Public Sector |
| **Concerned Agencies**<br><br>Provincial Government / Culture, Tourism & Antiquities Department/ Government of Sindh/ District / Local Government / MC | **Time of Implementation**<br><br>Short Term (1 year to 2 Years)<br>Long Term (More than 5 years) |

| | |
|---|---|
| ***Strategy:***<br><br>**Disaster Risk Management** | **Programs/ Policies**<br><br>• Engage all stakeholders of entire district in overall disaster rehabilitation process.<br><br>• Recognize the commitment of stakeholders and the need for collaboration across all levels of government, community, industry, commerce, and government owned corporations, private and volunteer organizations and local communities within all aspects of disaster management.<br><br>• Aligned job responsibilities of key stakeholders with job descriptions mentioned in principal guidelines proposed in *Pakistan National Disaster Risk Management Act 2010*, *National Disaster Risk Management Guidelines* and *Disaster Risk Management Plan, Sindh.*<br><br>• Ensure establishment of straight relationships, trust, teamwork, consultative decision-making and shared responsibilities among stakeholders. |

| | |
|---|---|
| | • Develop disaster risk assessment system through statistical information, risk maps, emerging hazards information and their affects.<br>• Adopt measures of sustainability of local communities by utilizing local resources available to avoid post disaster cataclysms (dearth, theft, spread of epidemic diseases, etc).<br>• Promote economic sustainability after disasters. |
| **Responsibilities to Plan**<br>• Identification of Disaster Prone Areas and Early warning and shelter homes<br>• Development of Community Training and Drill Organization Manual and SOP.<br>• Development Local stakeholders Roles and Responsibility SOP. | **Implementation Responsibilities**<br>Public Sector and National /International Welfare agencies |
| **Concerned Agencies**<br>NDMA/PDMA/ P & D department Gos/ SUPARCO/ Provincial Irrigation Department Gos/ Line departments of local government/District Disaster Management Authority. | **Time of Implementation**<br>Short Term (1 year to 5 Years) |

| | |
|---|---|
| **Strategy**<br>**Economic Development Plan** | **Programs/ Policies**<br>• Rehabilitation of Infrastructure in existing Small Industrial Estate (roads, street lights, parking for loading/unloading goods vehicles, etc.)<br>• Increase strategic storage through construction of cold storage / Godowns for agro products to cater drought situation.<br>• Provide good incentives near peripheries for shifting / re-location of whole sale markets from the inner city to reduce congestion.<br>• Encourage Local Private Investors by giving them subsidies. |

| | |
|---|---|
| | • Consider changing trends of crop production through periodically revise Economic Policy Framework (feasible studies for economic potentials)<br>• Ensure measures for security / risk recovery plan for economic zone.<br>• Market and logistics should also be added to enhance trade and commerce.<br>• Livestock and dairy sector needs to encourage and facilitated.<br>• Centralize wholesale markets to create connectivity with regional markets.<br>• Drought measures |
| **Responsibilities to Plan**<br>Feasible studies for economic potentials | **Implementation Responsibilities**<br><br>Public /private developers |
| **Concerned Agencies**<br>Provincial Government/District Government/Local Government/TAY Chamber of Commerce and Industries | **Time of Implementation**<br><br>Short Term (1 year to 5 Years)<br>Long Term (5 years to 20 Years) |

# Annexure – A

## Sustainable Development Goals Acceleration Plan

# Sustainable Development Goals (SDGs) Acceleration Plan
# Tando Allahyar DHQ Town

## Sustainable Development Goals:

The Agenda 2030 comprises of Sustainable Development Goals (SDGs) which are a call for action by all countries – poor, rich and middle-income – to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and address a range of social needs including education, health, social protection, housing and job opportunities, while tackling climate change and environmental protection.

The 17 goals of SDGs provide a direction for targeting human prosperity and have a global scope – applying on both developed and developing countries. SDGs have come into action since the beginning of 2016 and will continue as the leading global development agenda until 2030. The SDGs targets are defined as aspirational, with each government setting its own national/subnational targets while considering its circumstances and priorities. In consultation with stakeholders, governments are also to decide how to incorporate SDGs in its planning processes, policies and strategies, and to recognize the link between sustainable development and other relevant ongoing processes in the economic, social and environmental fields[1].

Pakistan signed the international agreement on the 2030 agenda in September 2015 during the United Nations General Assembly (UNGA) Session for sustainable development, committing to achieve the 17 SDGs between 2016 and 2030. In February 2016, under a unanimous resolution, the National Assembly of Pakistan endorsed SDGs as Pakistan's national development agenda. The country has thereafter made rapid progress in adopting and formally launching the 17 SDGs.

## SDGs in Sindh:

In line with the National Initiative on SDGs, Government of Sindh (GoS) has also made focused efforts to support the mainstreaming, localization, and implementation of the 2030 Agenda through a support project for SDGs implementation in Sindh, jointly-funded by the GoS and United Nations Development Programme (UNDP), with the aim to address socio-economic challenges in the province and steer it in a progressive direction towards achievement of the SDGs. Under the project, the SDGs Support Unit Sindh has been established in Planning & Development Department, Government of Sindh with effect from May 2017. The Unit contributes towards accelerating progress on SDGs in the province by working through following four approaches:

[1]United Nations Development Group, Reference Guide to UN Country Teams -Mainstreaming the 2030 Agenda for Sustainable Development, March 2017 Update

| Policies and Plans | Data Reporting | Financing | Innovation |
|---|---|---|---|
| Mainstreaming SDGs in local development plans and strategies clearly delineating the resource requirements. | Strengthening coordination, reporting and monitoring mechanisms for SDGs | Financing flows increasingly aligned with 2030 Agenda | Supporting integrated and innovative approaches to accelerate progress on SDGs on priority areas. |

GoS has also taken the crucial step towards mainstreaming and localizing SDGs in the province by approving prioritization of SDGs in the immediate, medium and long-term for the province. The prioritization has been done by considering severity of development issues and challenges, resource availability, and Sindh's economic and social endowments, value for money, and magnitude of impacts, in line with Sindh 2025 vision and other policies and strategies.

## Sindh's SDGs Priorities

| Ranking of Priorities | Goal # | Sustainable Development Goals (SDGs) | Immediate Priorities | Intermediate Priorities (Up-to 2025) | Long-term Priorities (Up-to 2030) |
|---|---|---|---|---|---|
| 1 | Goal 4: | Quality Education | | | |
| 2 | Goal 3: | Good Health and Well Being | | | |
| 3 | Goal 6: | Clean water and Sanitation | | | |
| 4 | Goal 7: | Affordable and Clean Energy | | | |
| 5 | Goal 2: | No Hunger | | | |
| 6 | Goal 8: | Decent work and Economic Growth | | | |
| 7 | Goal 9: | Industry, Innovation and Infrastructure | | | |
| 8 | Goal 16: | Peace and Justice | | | |
| 9 | Goal 11: | Sustainable cities and communities | | | |
| 10 | Goal 1: | No Poverty | | | |
| 11 | Goal 12: | Sustainable Consumption and Production | | | |
| 12 | Goal 10: | Reduce Inequalities | | | |
| 13 | Goal 5: | Gender Equality | | | |
| 14 | Goal 17: | Partnership development | | | |
| 15 | Goal 13: | Climate Change | | | |
| 16 | Goal 14: | Life Below Water | | | |
| 17 | Goal 15: | Life on Land | | | |

The above table indicates that the SDG Goal # 4, 3, 6,7,2 and 8 are on the Immediate priority, whereas Goal # 1,9,16,11,12 and 10 are on Intermediate priority i.e. upto year 2025. The remaining goals which are Goal # 5, 17, 13, 14, and 15 will be on the Long term priority i.e upto year (2030).

## Urban Development Planning and the SDGs:

Today's common urban development challenges like affordable housing, provision of basic services, municipal functions, controlling crime, poverty, disease and the exhaustion of natural resources do not respect regional borders or limits between the built and the non-built domains. Therefore, the scope of urbanization should always include the livable environment while also considering the regional dimension. In this connection, the rigorous consultation and analysis being done by GoS to prepare Development Master Plan of 14 DHQ Towns of Sindh, it is being realized with even more significance that sustainable development cannot be achieved without significantly transforming the way we plan, build and manage our urban spaces. The rapid growth of cities resulting in rising population and increasing migration that has led to a boom in urban areas and slums, is becoming a more significant challenge for urban areas.

Under the contract of the preparation of development Master Plan of 14 DHQ towns, SDG Acceleration plan was not part of the approved TORs but keeping in view the Sindh government's initiatives to mainstream SDGs targets in provincial planning (taking Islamkot as a model SDG Taluka) the Directorate and Consultant after due consultative process felt the need to include brief SDG Acceleration Plan as part of Development Master Plans. Accordingly in consultation with SDG unit Sindh, SDG 11 was selected for SDG Acceleration Plan for 14 DHQ towns since is pertinent to urban planning and development.

SDG 11 – *Sustainable Cities and Communities* sets the basis for urban-planning techniques and policies for the future. For a tangible acceleration towards achievement of SDG 11, simultaneous interventions will need to be executed directly through urban-planning interventions. While this involves investments in public transport, housing, creating green public spaces and improved urban planning and management in participatory and inclusive ways, an in-depth review of SDG 11 targets reveals a much stronger interlinkage with other SDGs such as poverty, health, education, clean energy, provision of basic services (social services as well as urban municipal services), etc. thereby generating a holistic societal impact, which is of prime importance in the context of Agenda 2030.

Using the key mechanism for periodic updating of the Development Master Plan after every five years, the SDGs Acceleration Plan also proposes embedding SDGs agenda targets against projects and schemes designed at local level and assesses the available and potential financing flows in context of future opportunities. Therefore, the targets and indicators of

SDG 11 – Sustainable Cities & Communities is being reviewed against the Master Plan, along with identification of supportive plans, policies and interventions.

The SDGs Acceleration Plan table below explicitly underlays the outline for how the Master plan of the town addresses the targets and indicators under SDG 11 – Sustainable Cities & Communities. The plan also takes note of the local social and economic data to identify services provision gaps at the local level, as well as key challenges at district level.

## SDG Acceleration Action Plan – Tando Allahyar DHQ Town

## SDG Goal 11 : Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | **Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable** | | | | |
| | 11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums | 11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing | [2]3% of the urban town population lives in katcha houses | - Increase in proportion of small size plots (Plot size will be depend on land value) could be made for low income groups in all new housing schemes.<br>- Affordable housing program for low income group in different phases up to 2037, through one window operation (including technical guidance, easy loan provisions, legal procedures) | Sindh Katchi Abadis, Squatter Settlements & Slums Policy<br>- The process of regularization and up-gradation of the pre-1985 katchi abadis shall continue as per current policy. However, katchi abadis, which are hazardous by virtue of being close to railways tracks or located under high tension power lines, or are on or close to the riverbeds, or on lands needed for operational /security purposes, need to be relocated at appropriate places by LOAs.<br>- Formation of new katchi abadis shall not be allowed and shall be discouraged by exercising strict development controls in all urban areas.<br>- Formation of Resettlement Plans<br>- Resettlement plans shall be prepared by the concerned Land Owning Agencies (LOAs) in consultation with |

[2] Data provided by Sindh Kacthi Abadis Authority, December 2019. Katchi abadi is defined as by Katchi abadi authority

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | | | | | affected communities for shifting of katchi abadis dwellers who fall within hazardous or security/operational zones. These plans shall primarily be on a self-financing basis.<br>- The internal infrastructure and services shall be provided on incremental basis depending on the needs and priorities of the residents to make them affordable and cost effective. Trunk infrastructure and services shall be provided by public sector organizations and the cost shall be met from Government exchequer |
| | 11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in | 11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities | 79% people have access to public transport.[3] | - Improve road design to make safer roads.<br>- Prevent encroachments on footpaths through litigation.<br>- Environmental Impact Assessment (EIA) should be mandatory for all transportation projects.<br>- Declaring private vehicle free zones, especially in peak hours, in CBD areas to reduce noise and air pollutions. | Sindh empowerment of Persons with Disabilities' Act, 2018[4]<br>i. Universal access to destination:<br>All destinations served by the public road system shall be accessible by pedestrians and by drivers of all vehicles (including bicycles), except that vehicle operation may be restricted for reasons of excessive weight, noise or size, or extraordinary potential for damage to property or person<br>ii. Equal Right of use:<br>People's right to use that portion of a street designed for travel is not diminished by less weight, less size, or less average speed associated with their travel mode. Demand actuated tra-c signals must detect and serve a |

[3] Socio Economic Survey 2017
[4] https://depd.sindh.gov.pk/sindh-empowerment-of-persons-with-disabilities-act-2018

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | vulnerable situations, women, children, persons with disabilities and older persons | | | - Reduce traffic growth and congestion by achieving a mode shift.<br>- Enhance institutional efficiency to improve service delivery.<br>- Dualization of main arteries<br>- Improve road design to make safer roads.<br>- Prevent encroachments on footpaths through litigation.<br>It is suggested that necessary provision of the above recommendation may be mandated in the laws and regulations of SBEA and other agencies which drafting the buildings and highway regulation | diversity of users including bicycle operators in the roadway and pedestrians using crosswalks.<br>iii. Accessible surfaces:<br>To the extent practicable, travel surfaces should accommodate travel on foot with minimal trip hazards and via common assistive devices such as wheelchairs. Roadway surfaces should be as clear as possible of hazards for narrow tires such as bicycle wheels.<br>iv. Crossable Roadways:<br>Crossing distances at non-signalized access locations must not exceed the distance that can be covered at walking speed before tra-c may arrive from beyond sight distance, or during reasonable gaps in roadway tra-c. Refuges provided to reduce crossing distances should be large enough to store assistive devices such as wheelchairs and strollers. Tra-c signal timing should provide adequate clearance intervals for safe crossing by pedestrians and slow vehicles. |

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | 11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries | 11.3.1 Ratio of land consumption rate to population growth rate<br><br>11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically | Baseline will be established at the start of implementation of Master plan.<br><br>Vision formulation exercise through multiple consultative workshops were conducted to establish a shared and common vision for the development of Tando Allahyar DHQ town in the future. | o The total extent of the area included in the overall proposed Tando Allahyar Master Plan is 12,500 acres approx. for a population of 295,100 by 2037 | Sindh Colonization of Government Lands Act 1912 and Disposal of Government Lands Rules, 2005.[5]<br><br>National Housing Policy 2001[6] |
| | 11.4 Strengthen efforts to protect and safeguard | 11.4.1 Total expenditure (public and private) per | Baseline will be established at the start of | • Protection of historical places and cultural heritage | Heritage act for policies 2012[7] |

[5] http://sindhlaws.gov.pk/setup/publications_SindhCode/PUB-16-000113.pdf
[6] http://mohw.gov.pk/mohw/userfiles1/file/National%20Housing%20Policy.pdf
[7] https://antiquities.sindhculture.gov.pk/index.php/about-us/acts/343-heritage-act-1994

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | the world's cultural and natural heritage | capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship) | implementation of Master Plan.<br><br>Tando Allahyar and its environ have many sites of historical significance including mainly Temple of Ramapir, Tando Allahyar Fort and Watayo Faqir's Shrine | | (2) An agreement under this section may provide for the following matters or 'for such of them as it may be found expedient to include in the agreement---<br>(a) the maintenance and custody of the protected heritage and the duties of any person who may be employed to watch it;<br>(b) the restriction of the owner's right to destroy, remove, alter or deface the protected heritage;<br>(c) the facilities of access to the public or to any portion of the public and to persons deputed by the Committee to inspect or maintain the protected heritage;<br>(d) the notice to be given to Government in case the land on which the protected heritage is situated is offered for sale by the owner, and the right to reserve by Government to purchase such heritage, or any specified portion of such heritage, at its market value;<br>(e) the payment of any expenses incurred by the owner or Government in connection with the preservation of the protected heritage; and<br>(f) any matter connected with the preservation of the protected heritage which is a subject of agreement between the owner and Government. |

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | 11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations | 11.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 population | Sindh Data [8]<br>No of deaths<br>(1988-2013) = 241<br>No of People effected (1988-2013) =24,096,173<br>Deaths per 100,000 population = 0.2491<br>Affected people per 100,000 population = 241 | • The DSM, PPHI shall also be responsible for providing medical cover to the IDPs in the catchment area of BHUs assigned to them particularly, and will perform their due role in supplementing the overall medical cover provided by the District Health Department.<br>• National risk assessment would identify highly vulnerable districts and be complemented by higher resolution work at local level to diagnose the underlying causes of risk, explore concrete risk reduction options and inform development planning and prioritization exercises and/ or disaster preparedness planning.<br>• Arrange medical teams for providing medical cover to the IDPs settled in any relief camp.<br>• Fumigate the affected areas and areas at risks of spread of any of epidemic disease. | National Disaster Risk Reduction Policy 2013[9] |

[8] PDMA (2017)
[9] http://www.pdma.gos.pk/new/resources/Sindhidrr-policy.pdf

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | | | | • Ensure that all ambulances are in working order and road worthy conditions.<br>• Ensure vacant possession of all schools buildings at the time of emergency for setting up relief camps.<br>• Ensure sanitation and cleanliness as well as clean drinking water facilities wherever possible at all school buildings declared as relief camps through by binding down their concerned Headmasters.<br>• The creation of an integrated multi-hazard damage loss data-base is therefore a prerequisite for systematic vulnerability and risk monitoring | |
| | 11.6 By 2030, reduce the adverse per capita environmental impact of cities, | 11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of | [10]Present Total solid waste generation in Tando Allahyar DHQ town is 70 tons per day. | - The collection and disposing of solid waste is the responsibility of the MC.<br>- The collection system needs to be made more effective and efficient.<br>- Town Municipal Committees has already initiated some work on | THE SINDH SOLID WASTE MANAGEMENT BOARD ACT, 2014 [11] |

[10] Municipal Committee Tando Allahyar
[11] http://www.pas.gov.pk/uploads/acts/Sindh%20Act%20No.IV%20of%202014.pdf

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | including by paying special attention to air quality and municipal and other waste management | total urban solid waste generated, by cities | Regular collection by municipal is about 50-60% | biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system.<br>- Techno-economic feasibility and detail study of characterization of waste is proposed on basis of the policy guidelines.<br>- Develop integrated solid waste management system keeping in mind the method, procedure and design at front end, middle end and back end, based on best possible public health practices and environmental protection laws/rules.<br>- Industrial waste disposal should be treated seperately and safely | |
| | 11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in | 11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and | Only 0.92% (15.6 acres ) out of total 1679 (7.6 Sq KM[12])acres park area is available in Tando Allhyar | • Establishment of Sports Complex along with old SRTC bus stand<br>• Existing open spaces in core urban area should be restored and maintained. New open spaces should be identified and created. | Adopt-a-park policy 2019 (PPP unit, Finance dept. GoS) is still in progress |

[12] Based on Landuse Calculations

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | particular for women and children, older persons and persons with disabilities | persons with disabilities | | • Development and preservation of cultural heritage<br>• Cater the problem of Shortage of water facility to maintain green spaces, green belts and trees plantation.<br>• Availability of sports infrastructure.<br>• Provision of infrastructure to accommodate visitors into cultural events | |
| | 11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning | 11.a.1 Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city | Through inclusive and participatory development of SDP and collaborative implementation, the target for development plan integration is achieved | • Build a local / district / regional transportation system.<br>• Rehabilitation of existing roads should be scratched from its compaction level and reconstruct as per specification of design perimeters.<br>• Discourage direct link roads with bypass<br>• The Consultant suggest that the Master Planning should be reviewed every five years to estimate the land use and area requirement according | • Preparation of Development master plans of DHQ towns by Govt of Sindh<br>• Poverty Reduction Strategy for Sindh approved by cabinet 2018<br><br>The key conceptual underpinnings of this strategy are:[13]<br>• The policy is focused on creation/facilitation of rural hubs:<br>• Using principles of agglomeration to support and drive growth<br>• Focusing on those interventions that will have a catalytic effect |

[13] Poverty Reduction Strategy for Sindh

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | | | | to the growth rate and economic investment | • Consolidation of services, for improved service deliver and better impact.<br>The combined effect aims to provide improved facilities, services and opportunities for households in the surrounding cluster of villages served by the hub |
| | 11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and | 11.b.1 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030a<br><br>11.b.2 Number of countries with national and local disaster risk | Provincial policies and strategies in placed | National risk assessment would identify highly vulnerable districts and be complemented by higher resolution work at local level to diagnose the underlying causes of risk, explore concrete risk reduction options and inform development planning and prioritization exercises and/ or disaster preparedness planning.<br>• Arrange medical teams for providing medical cover to the IDPs settled in any relief camp.<br>• Fumigate the affected areas and areas at risks of spread of any of epidemic disease.<br>• Ensure that all ambulances are in working order and road worthy conditions.<br>• Ensure vacant possession of all schools buildings at the time of | National Disaster Risk Reduction Policy 2013[14] |

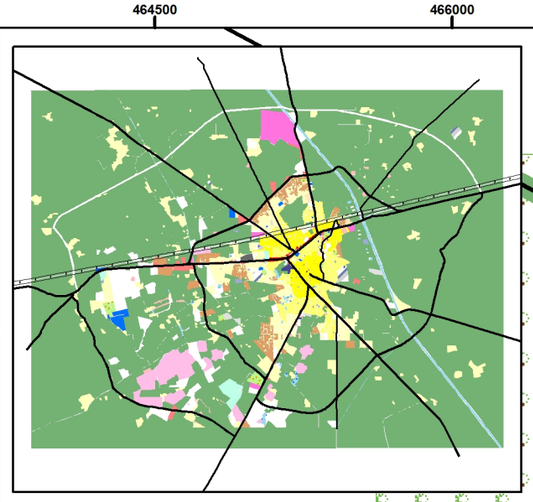
[14] http://www.pdma.gos.pk/new/resources/Sindhidrr-policy.pdf

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels | reduction strategies | | emergency for setting up relief camps. | |

# Annexure – B

Atlas

# Proposed Master Plan for Tando Allahyar Town



N
W
E
S

Emergency Reserved
Agricultural Fields
Small Industrial Zone
New Link Road
Warehouses
Truck Terminal
Low Income Housing
Trade and Commerce
Orchards
Cattle Farm
Tando Allahyar Bypass
Education
Water Supply
Tando Adam Road
Nasarpur Road
Public Administration
Agricultural Reserved Area
Extension of Gird Station
Hyderabad Road
Bus Terminal
Chamber Road
Health
Central Park
CBD
Mir Wah Road
Religious
Commercial
Green
Sports and Cultural Center
Residential
STP
Educational Zone
District Jail
Health Zone
Graveyard
Kolachi Road
Land Fill Site
Tando Mohammad Khan Road
Festival Ground

## Legend

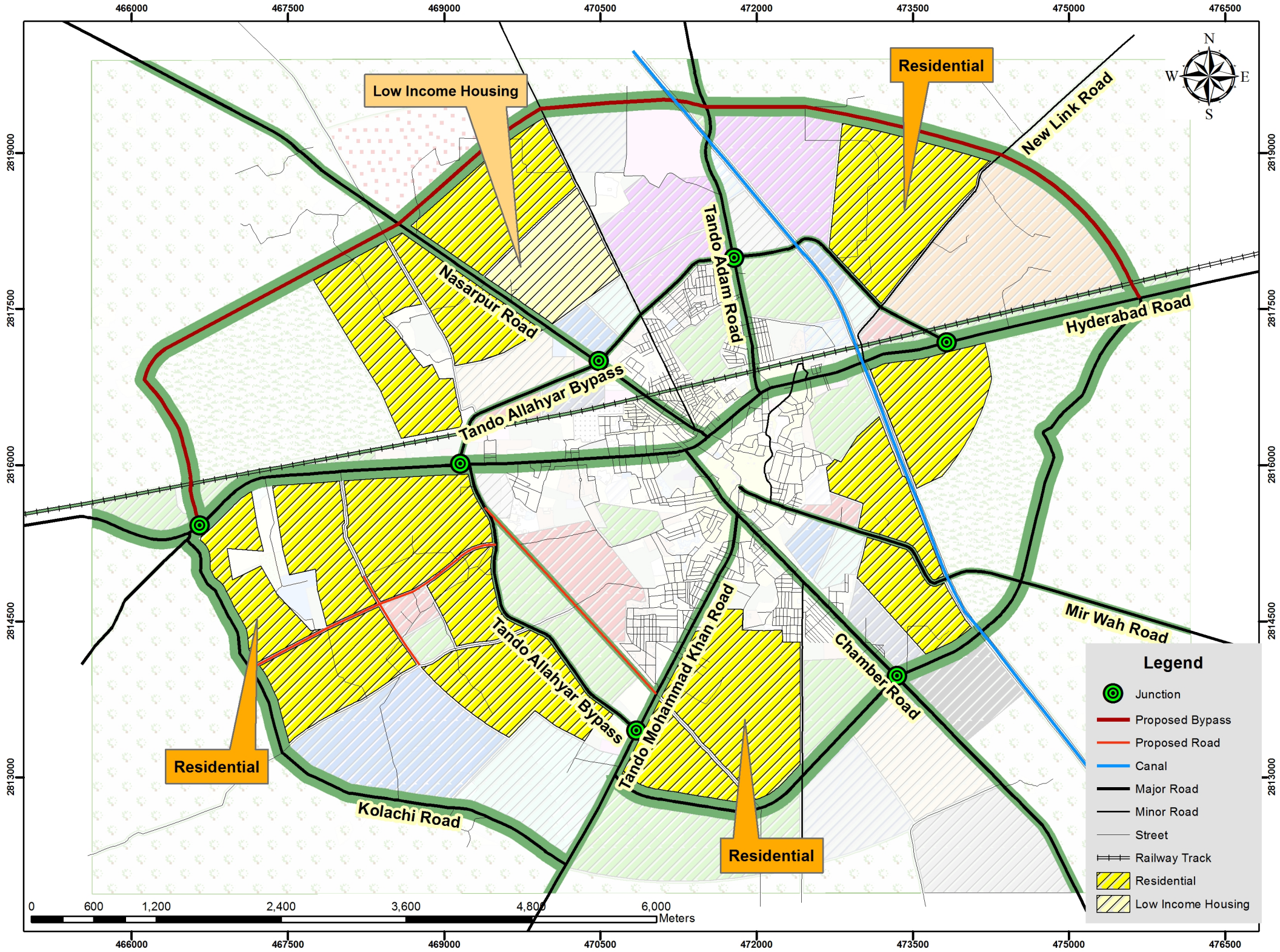
- Junction
- Proposed Bypass
- Proposed Road
- Canal
- Major Road
- Minor Road
- Street
- Railway Track
- Residential
- Low Income Housing
- Commercial
- Education
- Health
- Economic
- Recreational
- Livestock
- Public Administration
- Electricity
- Emergency Reserved
- Graveyard
- Land Fill Site
- Religious
- STP
- Transportation
- Water Supply
- Agricultural Reserved Area
- Agricultural Fields

0 600 1,200 2,400 3,600 4,800 6,000 7,200 Meters

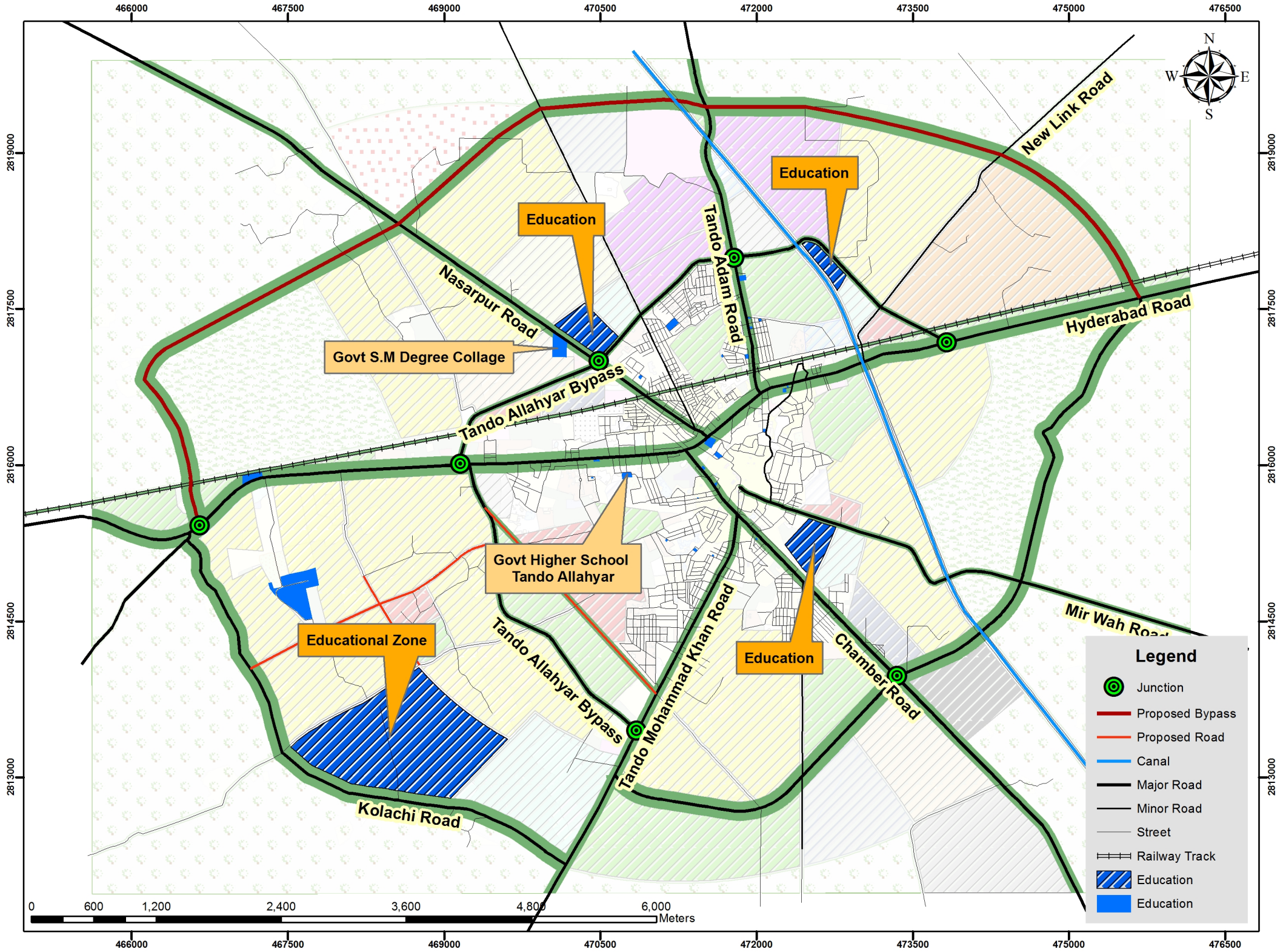
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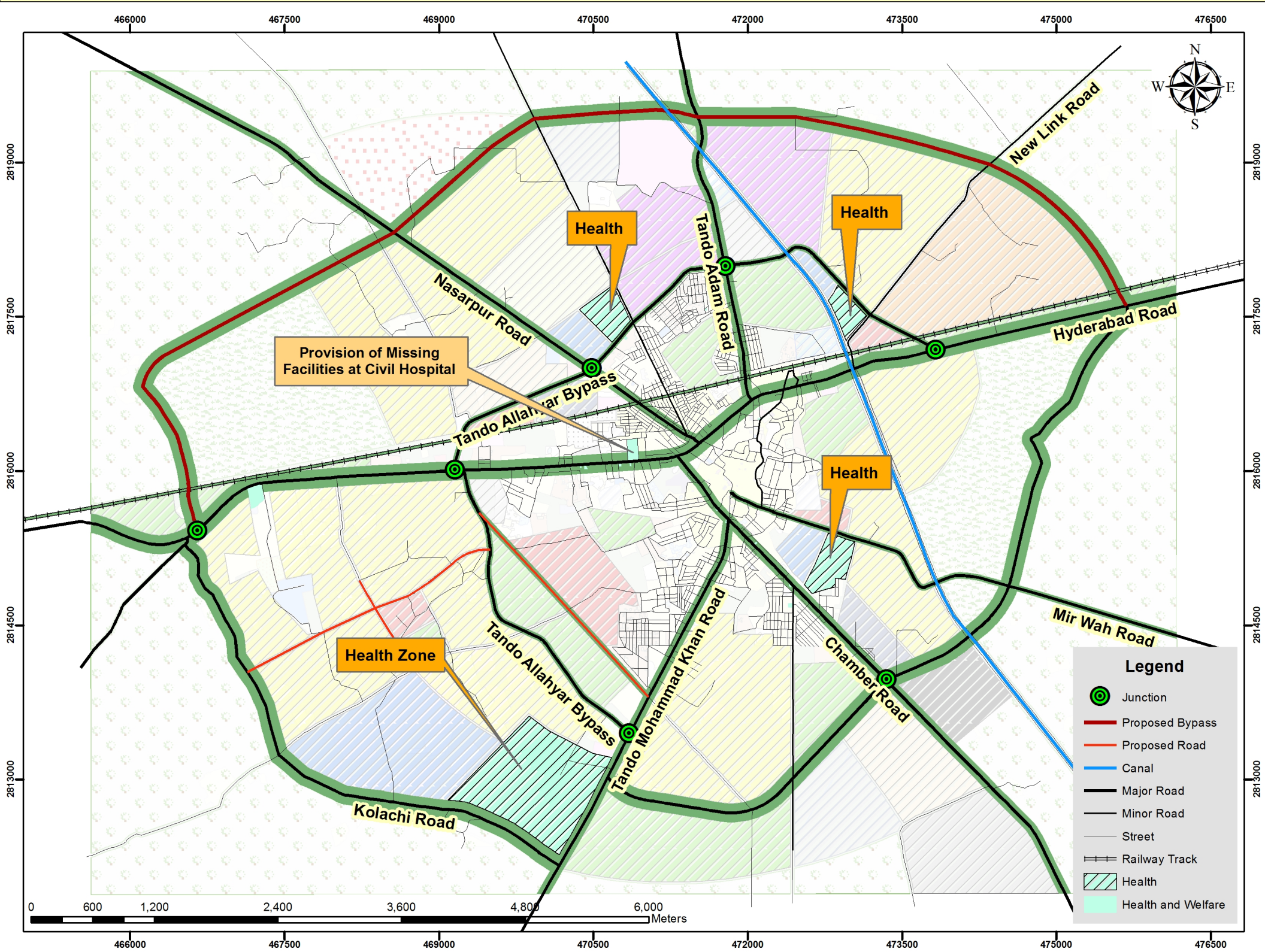
# Proposed Residential Landuse for Tando Allahyar Town



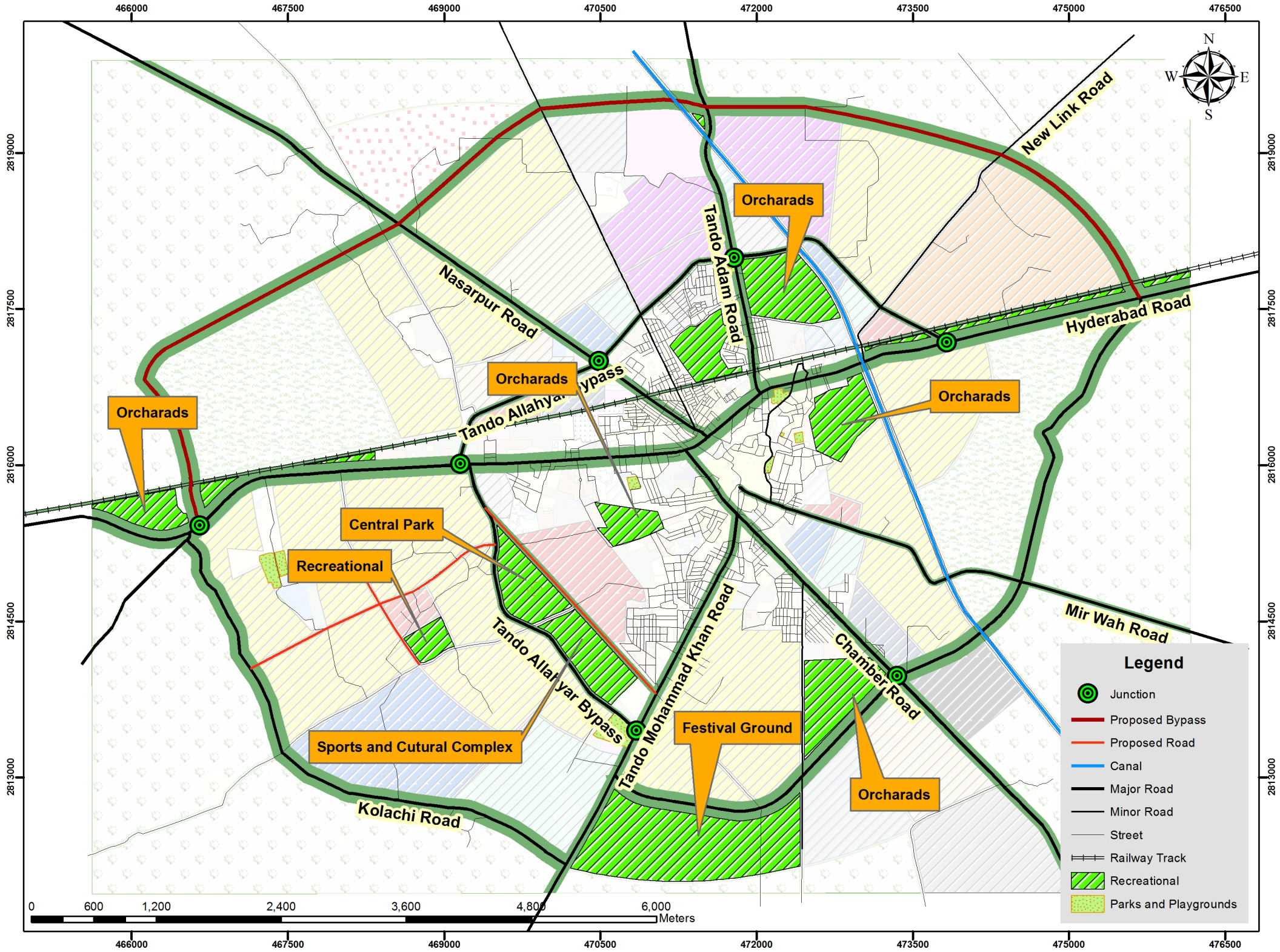
# Proposed Educatiuonal Landuse for Tando Allahyar Town



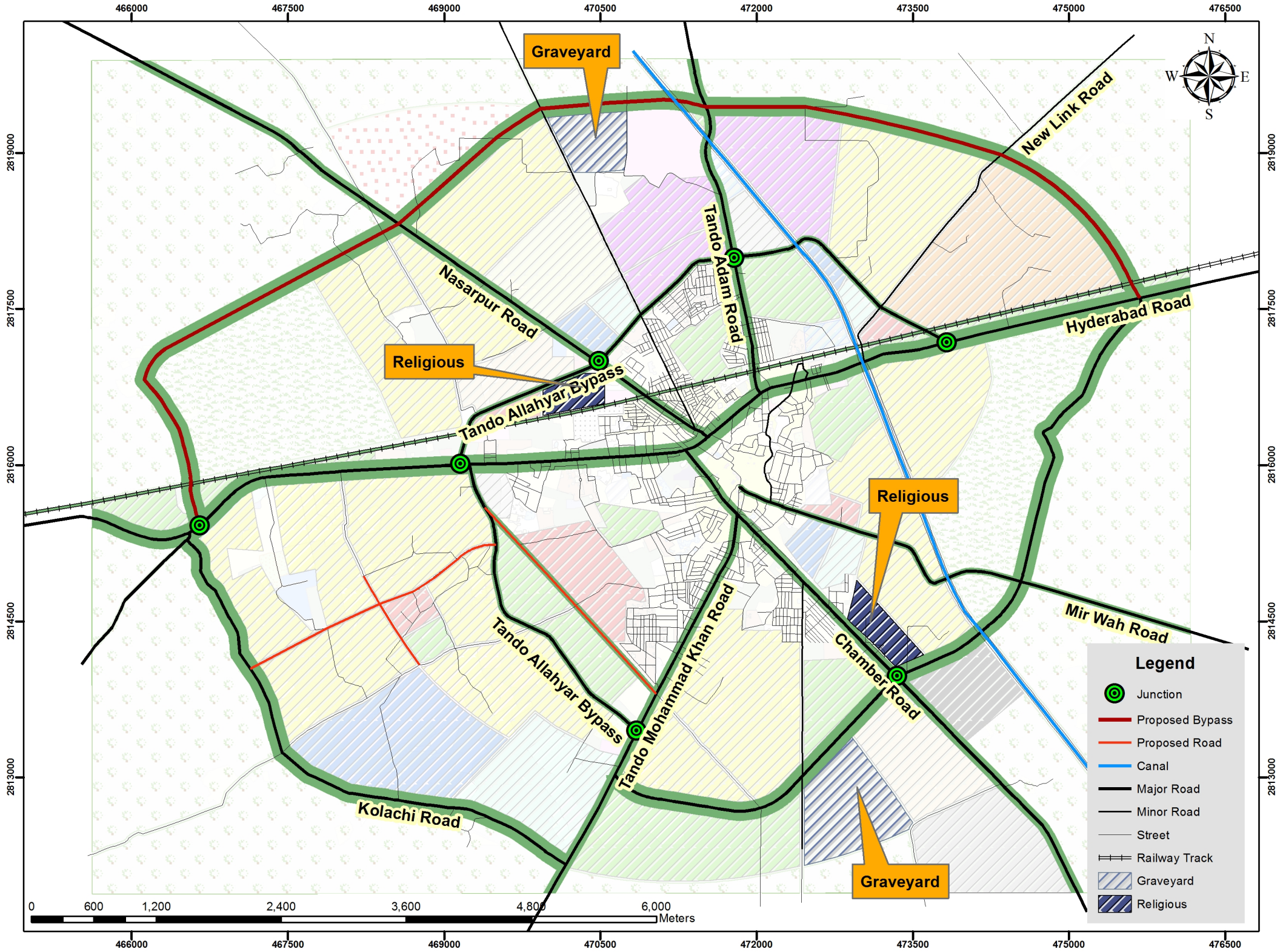
# Proposed Health Landuse for Tando Allahyar Town



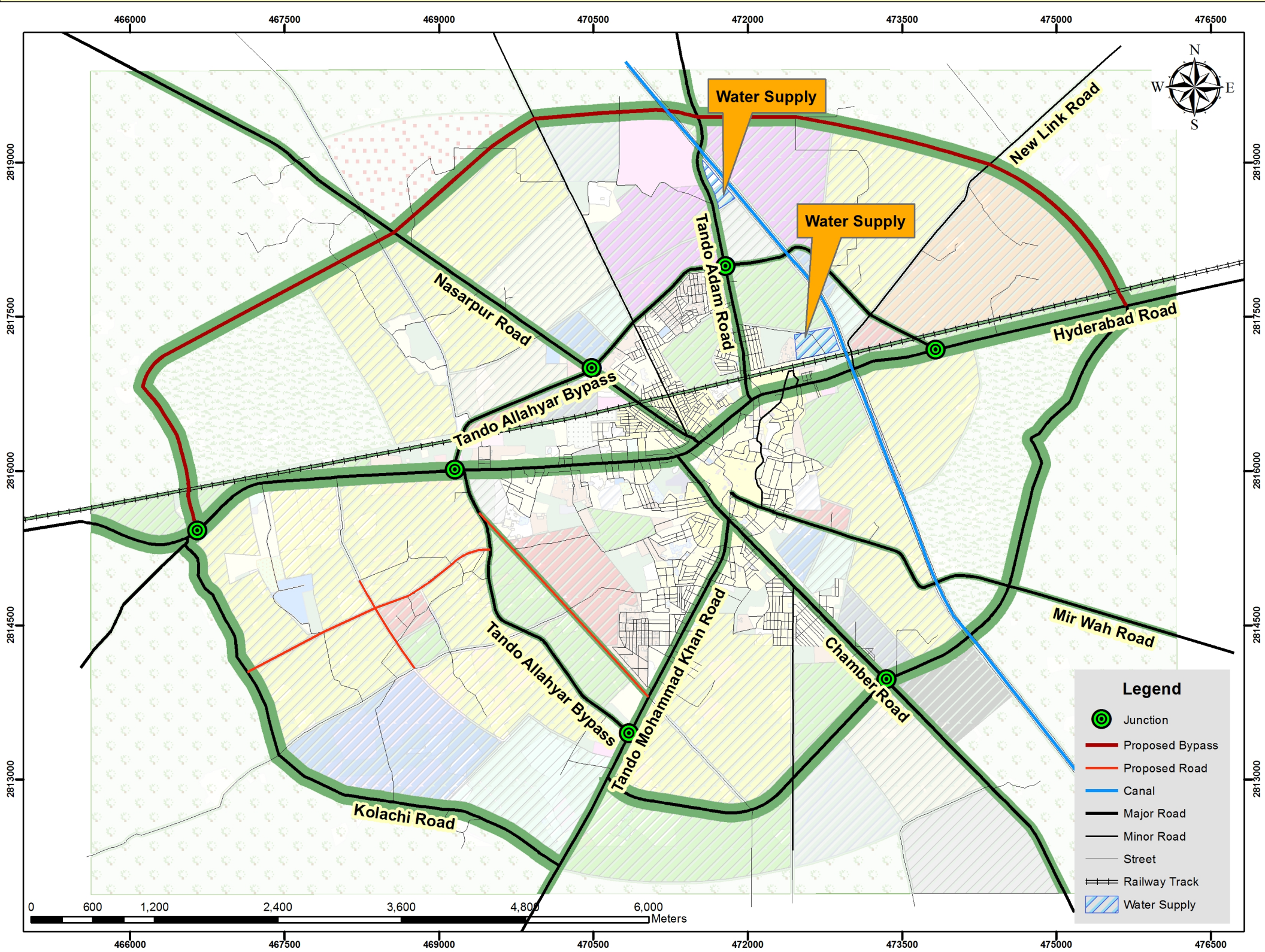
# Proposed Recreational Landuse for Tando Allahyar Town



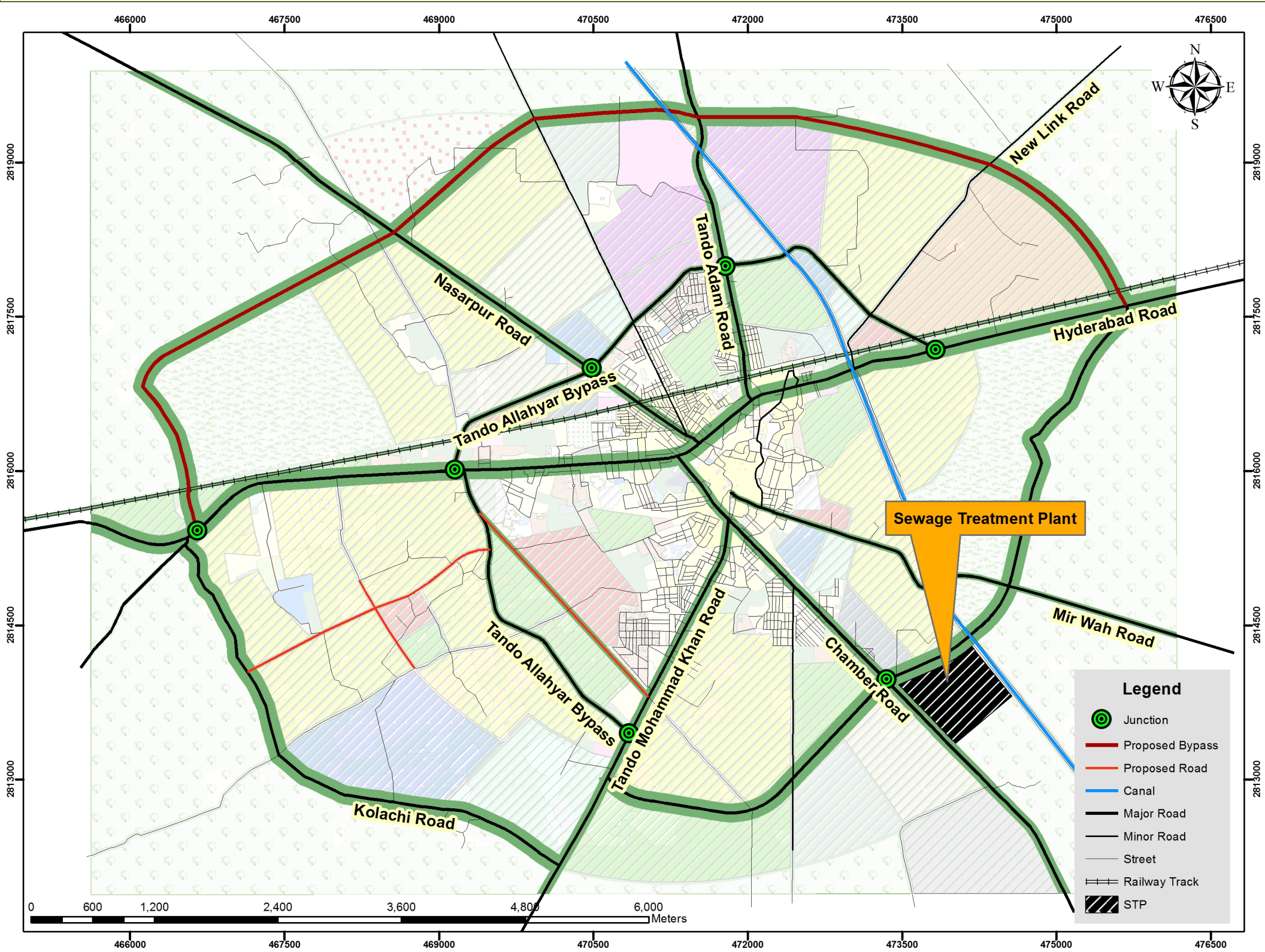
# Proposed Religious Landuse for Tando Allahyar Town



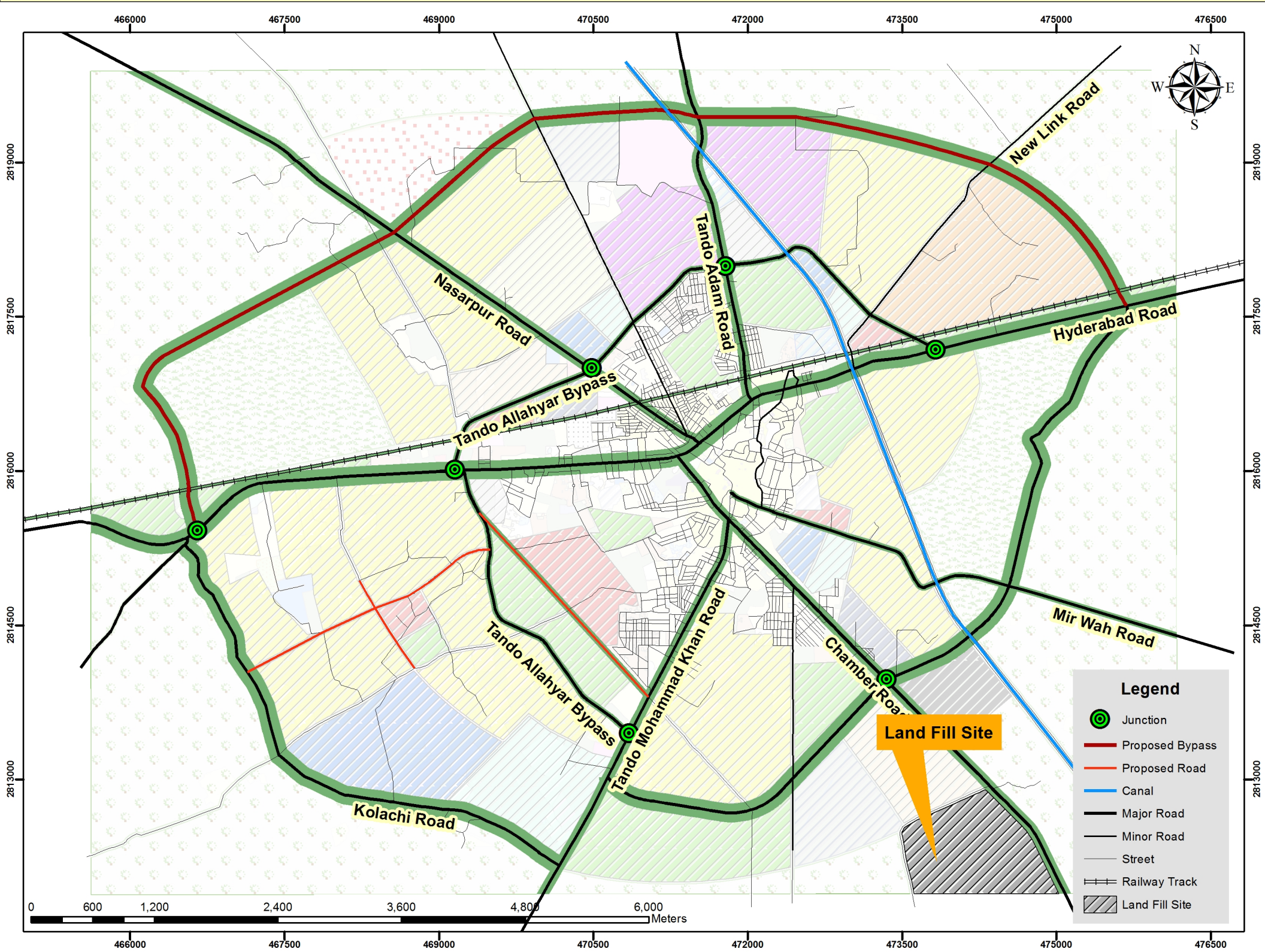
# Proposed Utilities and Services Landuse for Tando Allahyar Town



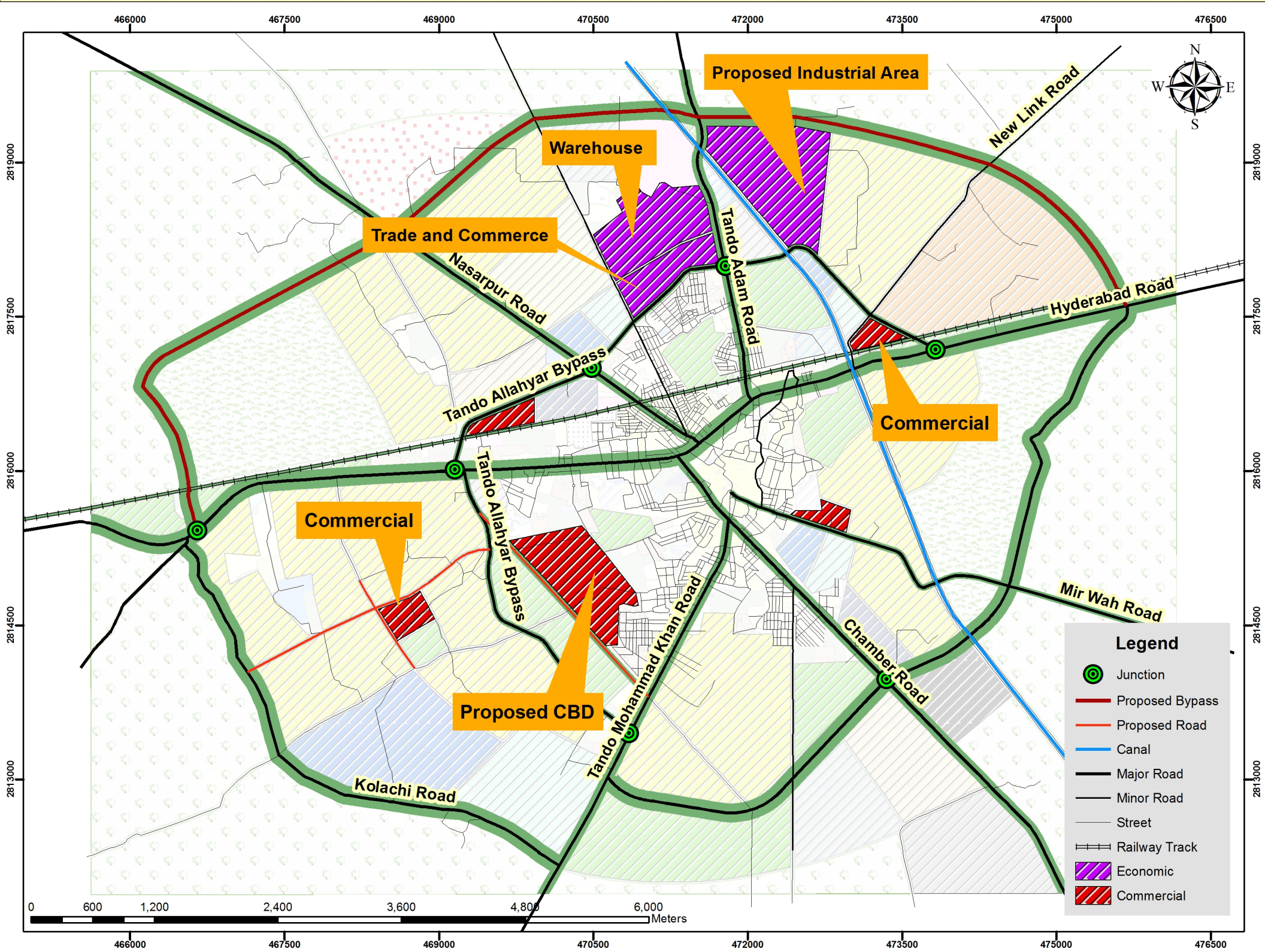
# Proposed Utilities and Services Landuse for Tando Allahyar Town



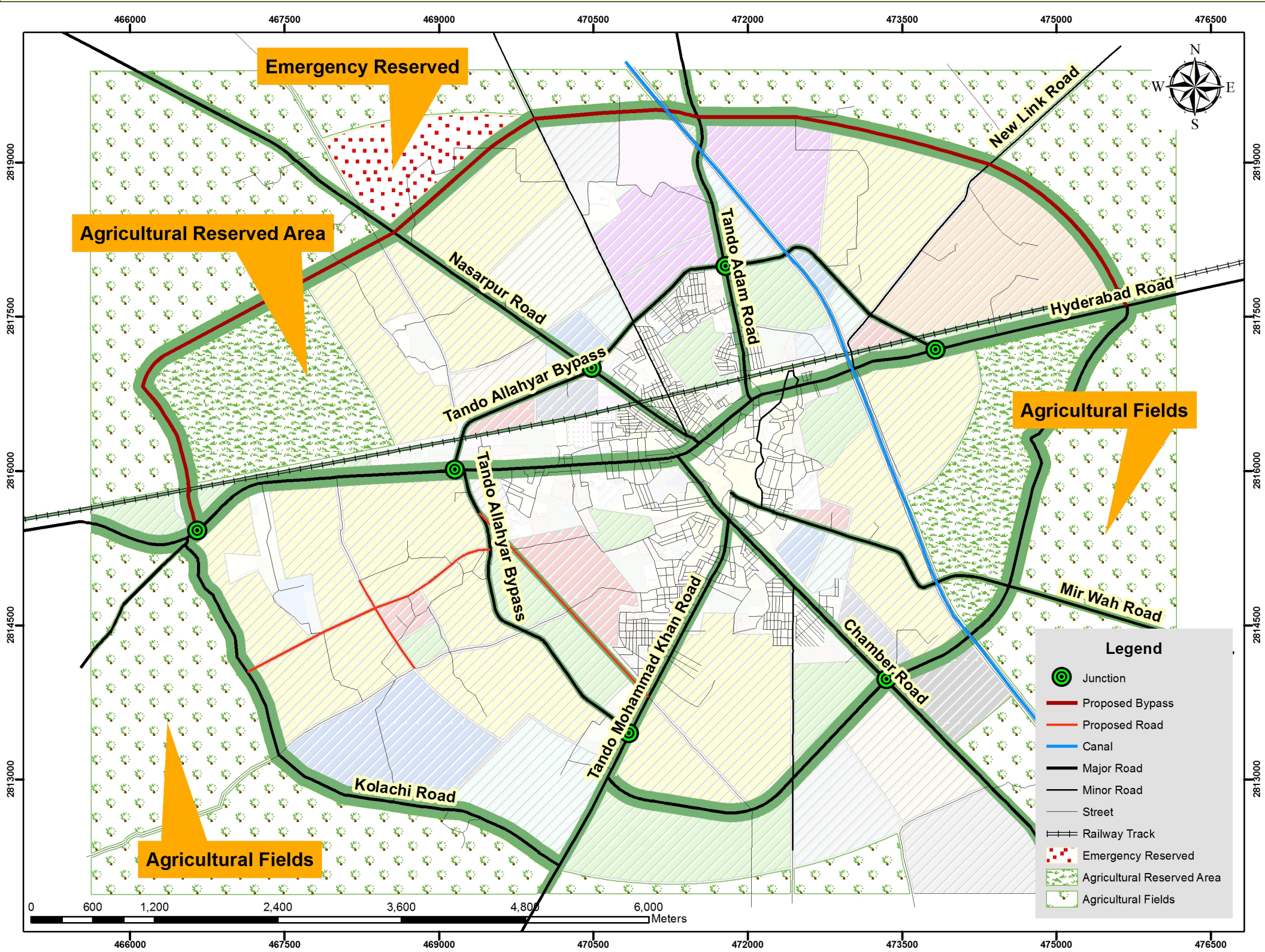
# Proposed Utilities and Services Landuse for Tando Allahyar Town



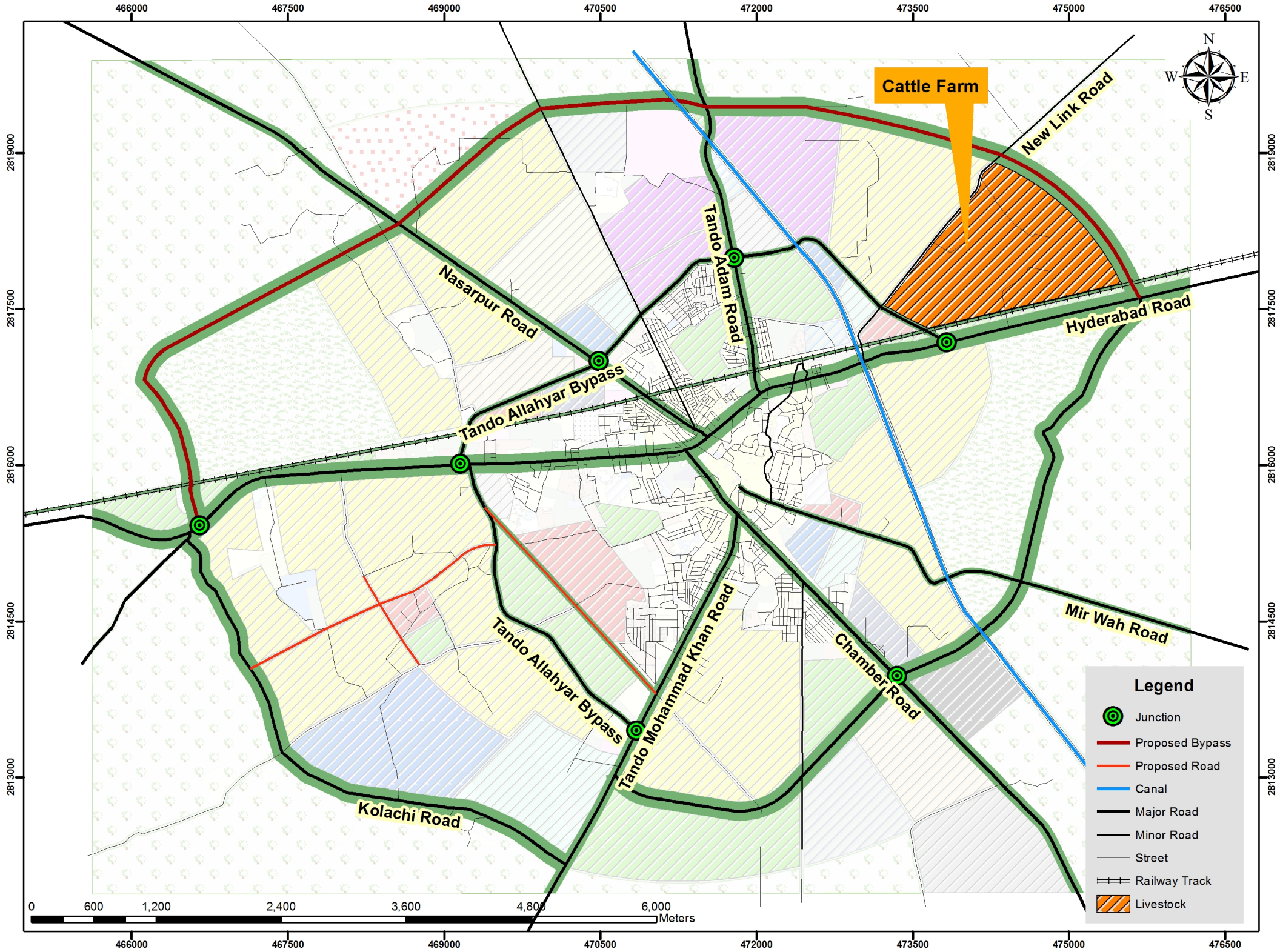
# Proposed Economic Landuse for Tando Allahyar Town



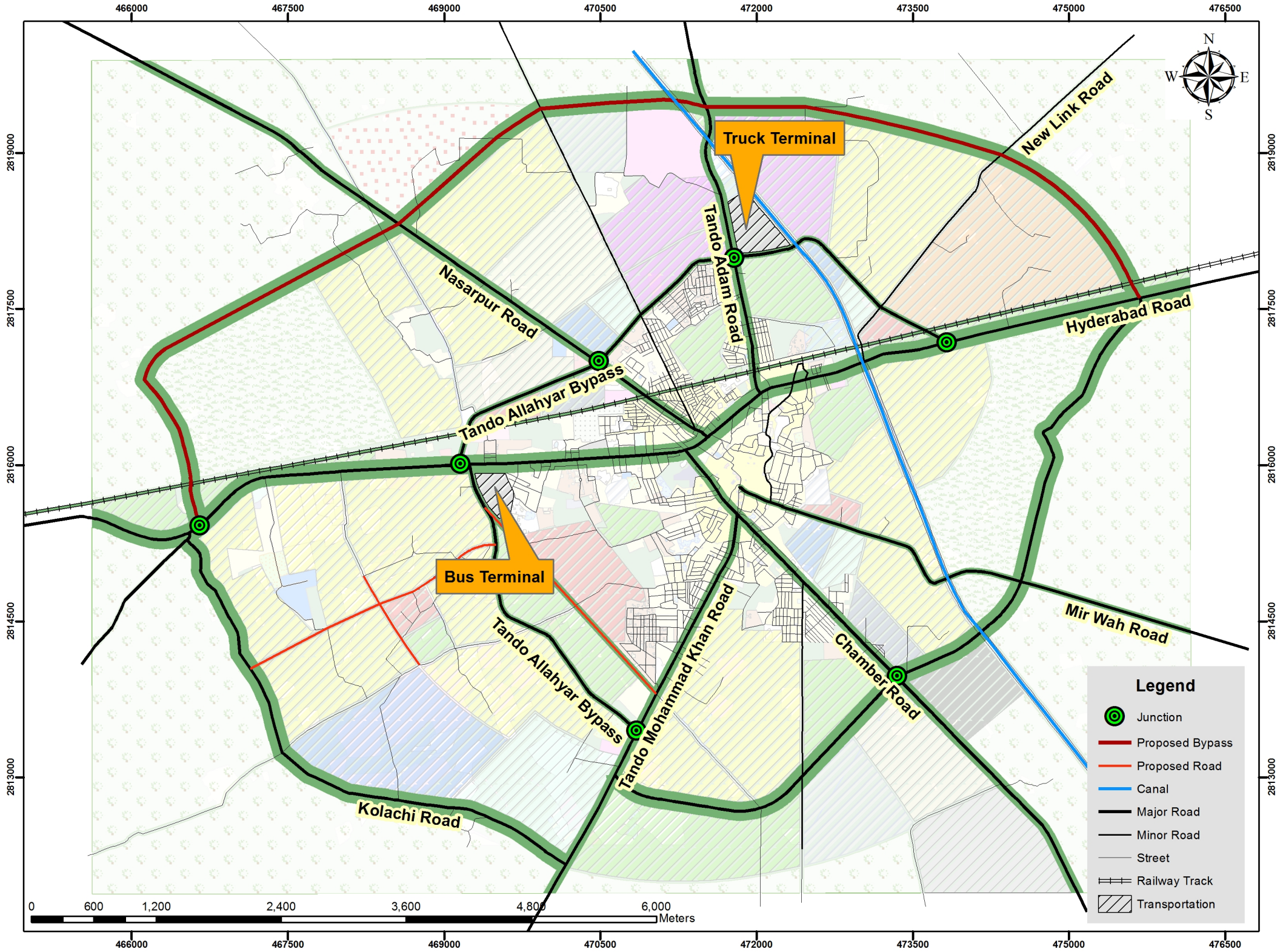
# Proposed Agriculture Landuse for Tando Allahyar Town



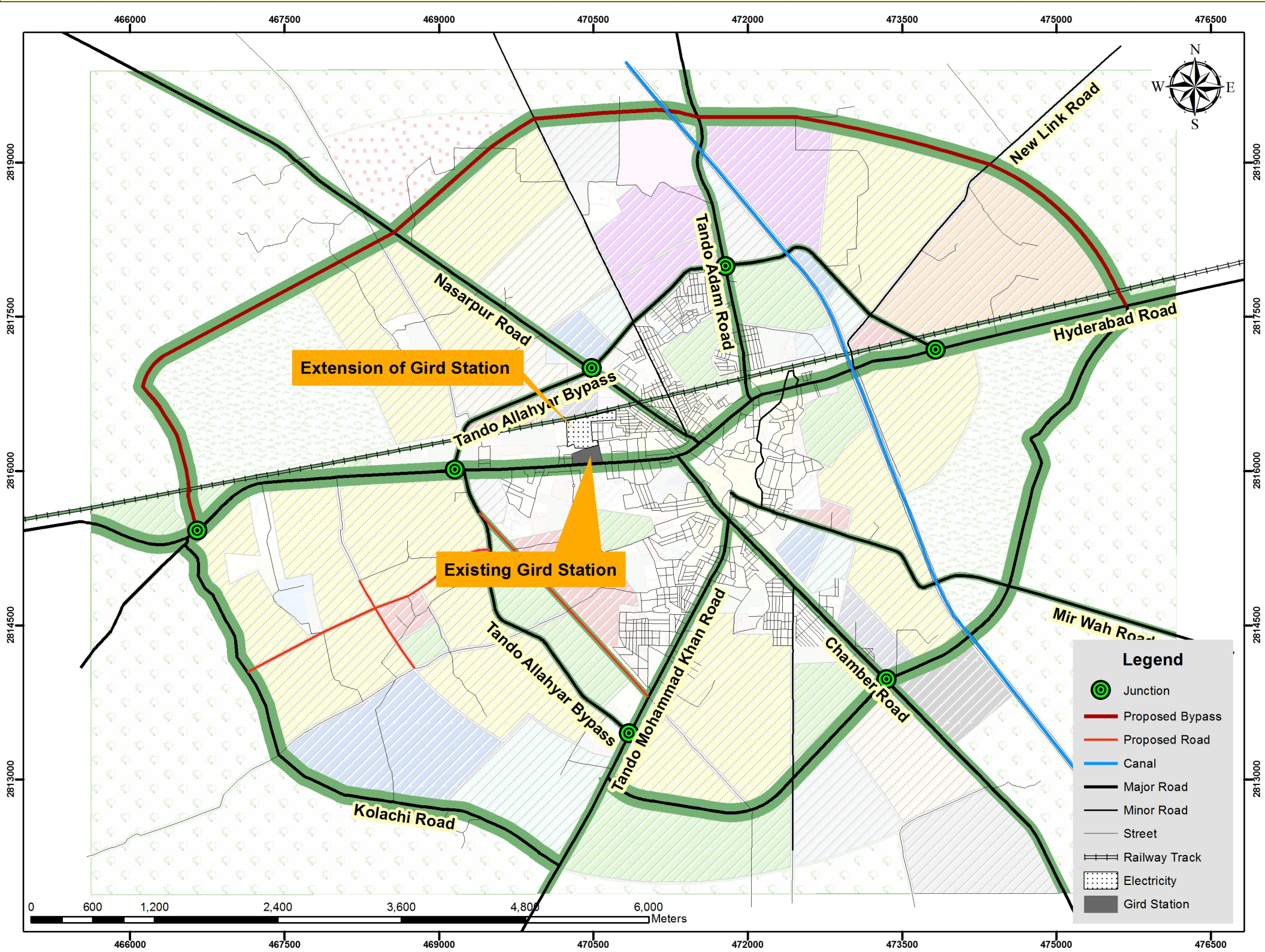
# Proposed Livestock Landuse for Tando Allahyar Town



# Proposed Transportation Landuse for Tando Allahyar Town



# Proposed Utilities and Service Landuse for Tando Allahyar Town



# Proposed Public Administration Landuse for Tando Allahyar Town

